RELEASE OF WATER FROM THE MISSISSIPPI RIVER HEADWATER LAKES IN MINNESOTA

(100-80)

HEARING

BEFORE THE

SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

OF THE

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

SECOND SESSION

JULY 14, 1988

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RELEASE OF WATER FROM THE MISSISSIPPI RIVER HEADWATER LAKES IN MINNESOTA

THURSDAY, JULY 14, 1988

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT,
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
Washington, DC.

The subcommittee met, pursuant to notice, at 10:13 a.m., in room 2167, Rayburn House Office Building, Hon. James L. Oberstar (chairman of the subcommittee) presiding.

Mr. OBERSTAR. The Subcommittee on Investigations and Oversight will come to order.

I am happy to welcome to this hearing my colleague from northern Minnesota to the west, Congressman Arlan Stangeland, a member of the full Committee on Public Works and Transportation and senior member on the Republican side of the Subcommittee on Water Resources.

Congressman Stangeland has devoted considerable and skillful time to the fashioning of the 1986 Water Resources Act and subsequent legislation affecting the clean water program. He is well versed in the issue the subcommittee has before it and that is the question of a plan for management of water availability in the Mississippi River and drawing down of the Mississippi headwaters to serve the needs of the Twin Cities area.

The poet Byron described the ocean as dark, heaving, endless, boundless, and sublime. Oceans, we know now, are neither boundless nor endless. For too long, we have thought of the Mississippi River in the same spirit, as endless.

And so it has seemed for perhaps the last 10,000 years since the retreat of the last glacier. But in the 1930's and again in the 1970's and now in the 1980's, we know that the father of waters, too, has limits.

Society has placed innumerable demands on our water resources. The human body requires a minimum of a pint and a half to 5 gallons of water a day depending on climate and extent of exercise. Human consumption of water ranges from the subsistence levels in arid regions of the world of 3 pints a day per capita to 165 gallons a day per capita in those areas where we use it also for watering lawns and golf courses.

Agriculture consumes 80 percent of the world's available fresh water resources, and 1,000 tons of water is required to grow 1 ton of grain. Although some 18 percent of the world's cultivated land is

irrigated, that 18 percent grows nearly 50 percent of all the world's food.

Industrial use has been expanding, but industry returns about 80 percent of its water to surface and groundwater.

In a 1977 world conference on water sponsored by the United Nations, the conclusion was reached that household consumption of water, processing, steam heating, and cooling as well as industrial uses are contributing to the progressive and chronic degradation of both the quality and availability of water.

All throughout the world, all the water that ever was or ever will be is available now. We have created many substitutes in our society and many synthetics, but we have created no substitute nor is there any synthetic for water.

Forty trillion gallons of water a day passes over the United States in the form of water vapor. About 10 percent of that falls on the land in the form of precipitation. About two-thirds of that evaporates or is taken up by vegetation. Only 675 billion gallons a day remains available for use.

It is enough if we use it wisely. The question is whether we are using it wisely.

Wise use and management of the available resources of water are the issues before us today in this subcommittee hearing.

Some time ago in our six-member household, none of us was where the others thought we were supposed to be at the time we were supposed to be there. There was just simply turmoil. The children complained bitterly that they didn't get to the things they were supposed to get to, and the parents complained bitterly that the children weren't where they were supposed to be.

The next morning on our refrigerator door was tacked a cartoon the children had found somewhere that said maybe the reason they didn't tell us about the plan is that there was no plan. The subject of today's hearing is whether there is a plan and what it is and how it affects the various users of water.

Water is colorless until we dump our wastes in it. It is odorless until mankind fouls it. It is tasteless, but there is no finer drink on the face of the earth. We are the stewards of that water and must use it wisely.

The Chair recognizes the gentleman from Minnesota for an opening statement and would like to preface that remark by acknowledging that the gentleman is required at another full committee markup, the Committee on Agriculture, which is dealing in another way with the problems of drought, and his presence is required for those votes.

Mr. Stangeland?

Mr. STANGELAND. Thank you, Mr. Chairman.

First, I want to commend you and the ranking Republican member, Mr. Clinger who is present for scheduling this hearing on a topic of critical importance to many Minnesotans, your constituents and mine included.

I join you in welcoming the witnesses who will be testifying before the subcommittee. I particularly appreciate your providing me the opportunity to play an active role in today's proceedings, even though I am not a subcommittee member.

Mr. Chairman, there can be little debate over the effect this continuing drought has had on the heartland of this nation, particularly the Mississippi River basin and its upper drainage areas. Not a day goes by that I don't hear from constituents the heartrending story of crops withering and dying. I see it on the weekends when I go home—farm ponds drying up and unavailable to support livestock and of concerns over the continuing availability of domestic water supplies in our rural areas to support even the barest essentials of household uses.

In plain language, this drought has a stranglehold on the economic livelihood and quality of life of the Minnesota people and others throughout the upper Midwest and around this country, and I clearly recognize that.

There can be little doubt that we at the Federal level should take all reasonable steps to alleviate the drought condition and to minimize the adverse impacts upon all concerned. Included among those efforts are plans of the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources to release waters from the Mississippi River Headwaters to augment the flow of the river down through the reaches of Minneapolis-St. Paul. Those reservoirs are the prime feature of a very popular resort area, providing over 5.9 million recreation days of use in recent years.

I certainly have no quarrel with the need to provide for the legitimate and necessary water uses of Minnesota's largest metropolitan region, but I want to be assured that any plans by the Corps and by the DNR include, as a precondition, all appropriate conservation measures by those who will benefit from the drawdown of the Headwaters lakes.

For example, it would be unconscionable to implement a series of releases from the Headwaters when the residents of the metropolitan area continue to enjoy car washing and lawn sprinkling privileges. It makes no sense to me to threaten the very life blood of the north central Minnesota economy, including recreation services, production of wild rice, continuation of adequate water quality and fish and wildlife habitat, and protection of groundwater recharge areas merely to satisfy nonessential uses of downstream inhabitants.

I am not convinced that the proponents of the plan have adequately addressed and considered the impacts upon those who reside and make their living within the Headwaters area.

Today's hearing gives the Corps and the DNR the opportunity to explain to us just exactly what is proposed and how the concerns that you, Mr. Chairman, and I have both raised will be addressed. Absent compelling hardship on domestic and other public services users in the metropolitan area, and unless and until severe conservation measures are imposed, I see no justification to implement any drawdowns of the Headwater lakes. I am not going to stand idly by and see the legitimate and life sustaining needs of my constituents sacrificed for freshly scrubbed whitewall tires and green lawns throughout the Twin Cities area.

You know, Mr. Chairman, I have 23 counties in my Congressional district. Those 23 counties started to discuss disaster assistance and disaster designation requests late May and early June, and most were declared disaster areas by June 10 to 12—1 month ago.

This Monday, as I left to come back to Washington, my wife said one of the things she had to do was mow the lawn. I looked at the lawn and said, "The lawn doesn't need mowing; there is no grass growing." She said, "But I haven't mowed it for three weeks." I said, "Well, it doesn't need mowing this week either. There just isn't enough grass there to run the lawn mower over."

You know, our farm lawns are dried up and have been dried up for a month. They are brown, and it just is very disturbing that the nonessential uses have continued in the Twin Cities and now the metropolitan area is asking for additional water even now when, as I understand it, the flow has not dropped below 1,000 cfs yet in the Mississippi. The plan, as I understand it, says restrictive use will not go into effect until the flow drops below 1,000. It is just very disturbing to me, Mr. Chairman, and I thank you for this hearing.

I do apologize that I am not going to be able to stay, because we are marking up a drought relief bill for the agricultural sector in the full committee today, and I, serving a big agricultural area, can ill afford not to be there. However, I thank you for the hearing and thank you for this opportunity.

Mr. OBERSTAR. Thank you very much. I appreciate your participation and share many of your concerns about water use.

The Chair recognizes the gentleman from Pennsylvania, Mr. Clinger, our ranking member of the committee.

Mr. CLINGER. Thank you very much, Mr. Chairman.

I join with you in welcoming the witnesses who will be testifying before the subcommittee.

Mr. Chairman, the problem of the drought affecting the upper Midwest is one which cannot help but be felt by just about all of us, whether we live in that area or not. We read daily of the problems encountered by the barge and towing industry attempting to move agricultural, chemical, and mining products down the lower Mississippi River, and the prospect of higher food prices is brought home every evening on television news as we view pictures of the stunted and burned out corn, wheat, and other grain crops in the Midwest.

To a much lesser extent, even here in Washington we see some of the short-term effects of the lack of precipitation—lawns and parks drying up and turning brown, water rationing either imposed or being discussed among the area's local government jurisdictions. This is a time, obviously, which calls for careful marshalling and conservation of all our water resources, and no more so anywhere than in the entire Mississippi River basin.

For every use of water, there is a competing use which must also be factored into any computation of supply allocation. We cannot, for example, merely increase withdrawals for municipal and industrial water supply purposes without being mindful of the impacts upon navigation, fish and wildlife, water quality, and recreational uses.

As I understand it, Mr. Chairman, these are the types of choices being faced by the Army Corps of Engineers and the Minnesota Department of Natural Resources in the development of plans to increase the flow of the upper Mississippi River by releases from the Headwaters lakes. Our hearing today will enable us to learn more about the problems peculiar to that particular region of the coun-

try and the way in which the proposed solutions to those severe drought conditions have considered and balanced these competing needs for an increasingly scarce resource.

Mr. Chairman, I commend you for demonstrating your concern in this matter and look forward to a productive day's session.

Thank you very much.

Mr. OBERSTAR. Thank you very much, Mr. Clinger. I greatly appreciate your comments and share in your thoughts about the balancing of uses and the need for foresight and wisdom in conservation as Congressman Stangeland has already also expressed.

In the 1960's, we had drought in the East. In the 1970's, we had drought in the West. It appears that the 1980's is the decade of drought in the Midwest.

Mr. OBERSTAR. Our first panel to address that issue consists of Mr. Earl Eiker, Chief of Hydraulics and Hydrology, Headquarters, U.S. Army Corps of Engineers; Mr. Edward Eaton, Chief of the Water Control Unit at the St. Paul District of the Corps of Engineers; and Mr. Steven Thorne, Deputy Commissioner of the Minnesota Department of Natural Resources.

Gentlemen, would you please come forward?

[Witnesses sworn.]

Mr. OBERSTAR. We greatly appreciate your participation in the hearing on relatively short notice. The timing is somewhat dictated by the movement of events and the pressures of our own legislative schedule here in the Congress.

You are the three people who are most directly involved in formulating and carrying out policy affecting water resources in this particular issue area and under these circumstances. We want to share some time with you today to discern the plan, how it is to be operated, and what its benefits and consequences are. We welcome your testimony here this morning.

Mr. Eiker, I understand you will lead off for us.

TESTIMONY OF EARL EIKER, CHIEF, HYDRAULICS AND HYDROLOGY BRANCH, HEADQUARTERS, U.S. ARMY CORPS OF ENGINEERS, ACCOMPANIED BY EDWARD EATON, CHIEF, WATER CONTROL UNIT, ST. PAUL DISTRICT; AND STEVEN G. THORNE, DEPUTY COMMISSIONER, MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Mr. EIKER. Thank you, Mr. Chairman.

Mr. Chairman and members of the subcommittee, my name is Earl Eiker, and I am the Chief of the Hydraulics and Hydrology Branch in the headquarters of the U.S. Army Corps of Engineers.

At your request, I am accompanied by Mr. Ed Eaton who is Chief of the Water Control Unit in our St. Paul District Office in Minnesota.

I am pleased to appear here before you today and will discuss the current operation of the reservoirs in the headwaters of the Mississippi in northern Minnesota and also discuss possible operational changes we could make to respond to the low flow conditions downstream of these reservoirs.

The six headwater reservoirs of the Mississippi River are Winnibigoshish, Leech, Pokegama, Pine, Sandy, and Gull. The Corps com-

pleted construction of these projects in 1937 for the purpose of augmenting flows in the Mississippi River primarily for navigation. The reservoirs are also operated, however, to reduce flood stages in the vicinity of Aitken, Minnesota and to facilitate use of the area for recreational purposes and fish and wildlife conservation.

These six reservoirs are normally derated in the same manner each year. Beginning October 1, a drawdown of about 1 to 3 feet, depending on the reservoir, is began in anticipation of the spring snow melt. During spring runoff, the lakes usually fill beyond summer requirements, and the excess is released downstream. By the end of May, the lakes are normally at summer levels. Barring any large amounts of rain, the reservoirs are then maintained at these levels until the fall drawdown is required again.

This year, due to the early melting of the snow pack and the below normal runoff, the winter drawdown was terminated in February. All of the reservoirs but Leech reached their desired summer levels. Leech Lake was about 6 inches below its desired level.

Currently, all the reservoirs are below summer levels due to a combination of low inflows, the minimum releases that are made from the projects, and evaporation. Leech Lake is experiencing the largest deficit from normal, and it is about 9 inches below summer levels.

To date, there have been no supplemental releases made by the Corps from the reservoirs to augment downstream flows. The Corps has been an active participant in the ongoing drought coordination efforts with the Minnesota Drought Task Force established by the Minnesota Department of Natural Resources. We are currently providing stream gauging and flow measurement assistance to the State.

During the course of weekly task force meetings, the State has expressed its desire to utilize the reservoirs as an emergency course of water to meet needs in the Mississippi River below the reservoirs to just downstream of the Minneapolis-St. Paul metropolitan area.

The task force identified a minimum flow rate of 1,000 cfs as measured at the Mississippi River gauge near Anoka, Minnesota as the trigger for initiation of a request from the Governor of Minnesota to implement plans to release water for flow augmentation in the reach of the Mississippi below the projects. Currently, the flow at the Anoka gauge is approximately 1,100 cfs and is, at present, slowly increasing from the recent rainfalls we have had in the area.

The Corps of Engineers has indicated to the State at the weekly task force meetings that we intend to cooperate to the fullest extent possible regarding the use of the reservoirs for low flow augmentation. At the present time, the Corps is reviewing legal considerations related to making such releases.

In the event that emergency low flow releases from the reservoirs are requested by the State of Minnesota, the Corps is developing regulation alternatives that could be put into place for the reservoirs. As part of the process, public meetings sponsored by the Minnesota Department of Natural Resources are being held in the

Mississippi headwaters today at Walker, Minnesota and one will be held also tomorrow at Grand Rapids, Minnesota.

These meetings are serving to inform area residents of possible actions that might be taken regarding reservoir use for low flow augmentation, act as a forum for the citizens to express their concerns, present tentative regulation alternatives for the six headwater projects, and to identify constraints on the alternatives that we have been studying to date.

The alternatives that are being considered include doing nothing and continuing along the same path that we are right now which would include only the minimum releases as we currently operate the projects; the uniform drawdown approach wherein we would draw down each project at a constant rate, thus keeping the drawdown spread among all six of the reservoir projects; and the third alternative would be a selective or variable drawdown, and this would consider use of only some of the six reservoir projects and a varying amount of drawdown to minimize the overall adverse impact. It would provide a means of protecting the Indian rights and also take into account differences in storage capacity among the project and the extent to which the individual reservoirs have already been impacted by the low flow conditions.

Decisions regarding the options will come only after meetings with the concerned interests and coordination with the State.

Mr. Chairman, this concludes my statement. I will be glad to try to respond to any questions you might have. Also, Mr. Ed Eaton who is with me here today will respond to anything specific you might like to ask.

Mr. OBERSTAR. We greatly appreciate having Mr. Eaton accompany you. I talked with him by phone and am greatly impressed with his grasp of the issues and knowledge of the problem at hand, and we will have questions to which you two may respond as appropriate.

Our next witness on this panel is Mr. Steve Thorne, acting for the Minnesota Department of Natural Resources.

I greatly appreciate the work that the Governor has initiated on this issue, being very deliberate, thoughtful, cautious, responsive to the concerns of both the metropolitan area water requirements and the legitimate claims of the headwater users of the Mississippi waters. He has tried to balance the equities, and he has not acted with any sense of over-reaction or panic. I really commend Governor Perpich for the manner in which he has conducted his responsibility toward all the people of the State.

Mr. THORNE. Thank you, Mr. Chairman.

My name is Steve Thorne. I am the Deputy Commissioner of Natural Resources for the Minnesota Department of Natural Resources.

I would like to say that I certainly agree with the statements that you and Mr. Stangeland have made about the need for everyone to share in the solution of this problem. This is a problem that all Minnesotans who rely on the Mississippi River share and a problem that they will have to join together to resolve. No one group should bear more of the pain of resolving that problem than another.

The Governor has made it clear from the outset of this process that he is not going to recommend any release of waters from the headwater reservoirs unless and until the downstream users, including Northern States Power and the cities of Minneapolis and St. Paul, have instituted maximum conservation measures to bear their share of the burden.

Our department has been actively involved in contingency planning to minimize drought impacts since early April. One of the early warning signs of long-range impacts is the steady fall in base flow in the Mississippi River at the Ford Dam in Minneapolis. Experience in 1976 and 1984 provides us with reasonable guidelines for concern as flows fall at this gauge.

From June 1, 1988 to June 20, 1988, the flow in the Mississippi fell nearly 70 percent and demanded immediate action.

There are three compelling needs for a substantial base flow in the river stretch extending from St. Cloud to Hastings, Minnesota. The first is power production.

Northern States Power operates a nuclear power facility at Monticello, Minnesota. This unit is the largest and most efficient unit in the NSP system and requires a minimum base flow of 860 cfs to avoid initiating closed system operation and reducing power output. If flows drop below 500 cfs, the plant must go to a total closed system, and power generation falls by 50 percent.

The second major use of water in this stretch is water supply. St. Paul and Minneapolis both draw their water supplies from the river.

St. Paul has developed a well field capable of meeting 25 percent of daily demand and a reservoir system that can provide 60 days of reserve supply.

Minneapolis has no alternative supply and a 24 hour reserve. If flow falls to 520 cfs, the Minneapolis intake pulls air and loses prime, resulting in failure of water supply for the largest single metropolitan center in the State.

The third major downstream use is waste assimilation. River flow that passes the Twin Cities intakes provides the essential function of waste assimilation for the effluent discharge at the Metropolitan Waste Control Commission's Pigs Eye Treatment Facility.

Flow in the river fell below the design flow for the plant in late June, and dissolved oxygen levels are holding just above the critical point to avoid an extensive fish kill. In 1976, a 10-mile stretch of the river suffered a near total kill, and game fish populations have only become stable in the past 4 or 5 years.

Given these needs, we began evaluations of alternatives with the Drought Task Force, I might add, and found only two options available:

Allow stream flows to fall. This option assumes power production would be cut back accordingly and ultimately, if necessary, the Monticello nuclear facility could be taken off-line. Locking could be suspended in Minneapolis and the dam closed to flood out the city water intakes.

This alternative essentially eliminates the flows for waste assimilation and accepts a sag in dissolved oxygen and, ultimately, a major fish kill below the Pigs Eye Treatment Facility.

The second alternative is to supplement flows. As the Corps has just testified, six reservoirs exist in north central Minnesota that were constructed prior to 1913 to supplement flow for navigation in the Twin Cities reach of the river. Maintenance of the 9-foot navigation channel has all but eliminated the need for reservoir releases for navigation.

Although the reservoirs are low due to the drought conditions, there is sufficient storage to supplement river flow for an extended period without a major net impact on water levels. Evaporation losses on the reservoirs, for example, would exceed withdrawals by two to three times.

Obviously, any withdrawal of water from these reservoirs, located in the heart of the northern resort industry, has the potential for substantial adverse impacts. We believe that navigation may be most seriously impaired through shallow water in connecting channels between lakes and at harbor and marina entrances. We are preparing mitigative measures, primarily dredging, to minimize these impacts.

Fisheries personnel at DNR see no significant impacts on the lake fisheries. However, public perception may result in cancellation of reservations at resorts in the area.

As a result, we have developed a work group, as has been stated earlier, of State and Federal entities and representatives of the resort industry to develop a recommended plan of action and establish a flow bench mark for initiating the plan. The basic elements of the plan are as follows:

First, the trigger flow is 1,000 cfs. If the flow in the Mississippi River at Anoka falls below 1,000 cfs for 24 hours, the cities of Minneapolis and St. Paul have agreed to do the following:

Minneapolis will implement additional water use restrictions to reduce daily use to winter use levels. That is approximately one-half of summer use. Restrictions would include prohibitions on nearly all outdoor uses save the preservation of newly planted trees, for example. Essentially, all outdoor uses would be eliminated.

Minneapolis, by the way, is currently restricting lawn sprinkling on an odd-even basis, so they have implemented that conservation measure already.

Second, St. Paul will restrict its withdrawals from the river to winter use levels while supplementing supplies from its well field and lake system. St. Paul will go to odd-even lawn sprinkling at the 24-hour 1,000 cfs flow and prohibit sprinkling at the 72-hour 1,000 cfs flow.

So, essentially, after that period, both cities would be reduced to appropriations from the river no greater than their average winter use. So, it would cut their use approximately in half.

Northern States Power has agreed to reduce its water use and would purchase additional power from other sources, including additional coal burning at its area plants. NSP is currently using a partial closed system at Monticello to accommodate existing river flow.

If the flow remains at 1,000 cfs or below for 72 hours and the cities are complying with the water use restrictions, a request will

be made to withdraw water from the reservoirs. Releases would be managed to maintain a base flow at Anoka of 800 cfs.

We believe that this course of action represents a reasonable approach to minimizing drought impact for the public at large.

Maintenance of an 800 cfs base flow would require withdrawal of approximately 300 cfs from the headwater reservoirs which could be sustained for 60 to 90 days with a net impact of between 2 and 4 inches in lake levels. In addition, current waters levels on the reservoirs vary substantially, and we are examining selective withdrawals from those lakes with higher levels to further minimize impacts on the recreation industry and rice production.

Those alternatives, I think, were well outlined by the Corps in its previous testimony.

I want to emphasize that we view this action as a last resort and hope to be able to avoid withdrawals. I think, as was mentioned earlier, river levels are increasing. We are maintaining at substantially above the 1,000 cfs trigger level today. Rains on Monday night throughout most of the watershed should have an additional impact, and we are hopeful that that will at least get us through July without having to make any kind of request for withdrawals from the headwaters lakes.

As previously stated, we are working with the local communities. We have two hearings in the area today and tomorrow. We have met with the Leech Lake Band. We will have further discussions with that group.

We are very interested in balancing the interests and taking any mitigative actions that we can to minimize the impacts from any releases should they be requested.

Mr. Chairman, this concludes my formal testimony. I will stand for any questions.

Mr. OBERSTAR. Thank you very much, Mr. Thorne.

We currently have a vote in progress on the House floor and we are on the second bells right now. We will take a brief recess for this vote and resume immediately on returning.

[Recess taken.]

Mr. OBERSTAR. The subcommittee will resume its sitting.

I offer apologies and regrets about the delay. Unfortunately, we cannot predict when votes will occur or, subsequent to that, intervening business on the floor.

The Chair would like to acknowledge the presence of the gentlewoman from Maryland, always vigilant on the issues of water, and recognize the gentlewoman at this point for any statement.

Mrs. BENTLEY. Thank you, Mr. Chairman.

I ask unanimous consent to submit a statement for inclusion in the record.

Mr. OBERSTAR. Without objection, so ordered.

Mrs. BENTLEY. As we proceed, I am going to be reading this testimony. I am sorry I couldn't be here earlier. The Vice President was in my district, so I was there with him.

However, I am interested in this subject, because it deals with something that is very important both to you and to me, and that is water and what is going to happen in our whole country concerning water. This is one facet of it.

So, I commend you for holding this hearing today as we focus on Minnesota.

[The prepared statement of Mrs. Bentley follows:]

Rep. Helen Delich Bentley's

Opening Statement before the

Subcommittee on Investigations and Oversight

July 14, 1988

Chairman Oberstar and Ranking Minority Member, Mr. Stangeland, I commend the subcommittee leadership for arranging today's oversight hearing this morning to review the water resources of the Mississippi River Headwater Lakes.

I look forward to receiving testimony presented here from the Army Corps of Engineers who play an important role in maintenance of this nation's natural water resources. Their expertise has been greatly appreciated during these dry and hot summer months. Many regions of our nation have suffered significantly from the drought conditions including my home state of Maryland. The Army Corps of Engineers has provided technical assistance ~~through performing~~ and performed necessary dredging projects on several rivers. Dredging has been required as a result of the low water level on these rivers. I commend the work of the Corps and applaud their contributions made to drought stricken areas of the country.

Navigation of the Mississippi River has long been a vital link for domestic trade. The Corps presence on this important natural resource and its tributaries and reservoirs has contributed greatly to competitive trade and a sufficient water supply.

I offer my continued assistance in addressing water issues facing the 100th Congress and look forward to working with my colleagues of the subcommittee.

Mr. OBERSTAR. Well, we thank you for your participation and, as we have learned in this committee of all committees, we all share a national treasure in water and must join in supporting measures in each part of the country to ensure that there will be adequate supplies for our requirements.

I have a number of questions I would like to pursue at this point, the first of which is I would like to have the Corps' definition of the term "reservoir."

Mr. EIKER. I guess I will take a whack at that, sir, if I could. We would look at a reservoir as strictly being a man made body of water. In more specific terms, you would think of it as being created by the construction of a dam having certain outlet facilities to pass some of the water downstream. So, it would be a man made impounding as opposed to something that was created by nature.

Mr. OBERSTAR. There is a problem, however, with the concept of reservoir as it applies in the situation at hand, and that is all the lakes at the headwaters preexisted even the Corps of Engineers, strange as it may seem for one of our oldest institutions in this country and in this government. Leech Lake and the others derived from the last glacier.

They have been augmented and their flow regulated by structures constructed by the Corps of Engineers and some that go as late as the 1930's, I think as your testimony indicated, and as early as the 1880's or 1890's for movement of logs to serve the wood fiber industry at that time of our development.

How does the term reservoir apply to this type of situation? I think your definition of reservoir is correct and should be a legal definition, but, then where man has altered existing bodies of water and expanded upon them or where man regulates the flow of those bodies of water, how does the term reservoir in those circumstances differ from the one you just gave?

Mr. EIKER. That is a tough question, but I will try to respond to that. I think in the particular case at hand, the Congress has authorized those particular modifications, if you will. In the strict sense that I defined reservoir, I would tend to agree with you that they might not be put into that category, although the modification of those projects through the construction of control works and so forth was rather significant.

I certainly am not a lawyer and didn't offer my response up in any way to be any kind of a legal definition but only one that perhaps we could put this in terms that we could all talk on the same level.

However, I think as far as those projects are concerned, it doesn't seem to me or I don't understand how defining them as reservoirs or not reservoirs is that important in that they are Congressionally authorized to meet certain needs, and that is the response that we would try to assure that those lakes could meet, those which were defined and laid out for us by the Congress.

Mr. OBERSTAR. The reason I ask and want the definition is so that we understand how the management plan will be carried out and how it will affect those bodies of water as distinguished from a reservoir in the traditional sense of that word.

If the Corps builds a structure and impounds water where none was before, it can draw that water down, admittedly, to zero

behind that structure. The situation where you have preexisting lakes that are regulated by a structure may impose some different requirements on use and drawdown of water.

That is what I am trying to establish here: parameters and differentiation not only for this instant situation but for future similar circumstances. So, if you wish to supplement your statement with legal definitions from the Office of General Counsel that would draw distinctions between these two or among other definitions of reservoir and how management may be different under differing circumstances, we would include that elaboration at this point in the record.

Mr. EIKER. Let me ask our Office of Counsel if they could prepare such a thing, and we will provide it for the record then, sir.

Mr. OBERSTAR. I think that is a very important bench mark for us.

[The following was received from Mr. Eiker:]

As indicated above, the key is not defining reservoir to distinguish between water resource impoundments which are wholly manmade and those which may partially contain a naturally existing lake. Rather, the Secretary manages water resource projects in accordance with the project purposes authorized by the Congress. That is, project operation is derived from and depends upon the purposes for which the project was authorized.

In the case of the six Mississippi headwaters dams, the Congress initially authorized construction solely for the purpose of navigation. Rivers and Harbors Act of 1880, Sec. 1, 21 Stat. 180 (1880); Rivers and Harbors Act of 1882, 22 Stat. 191 (1882). However, as it became apparent that operation of the reservoirs for additional purposes was consistent with the primary purpose of navigation, Congress authorized the Secretary of the Army to promulgate regulations for the operation of these projects: "[I]t shall be the duty of the Secretary of War to prescribe . . . rules and regulations in respect to the use and administration of said reservoirs as in his judgment the public interest and necessity may be required . . . ." Act of August 11, 1888, c. 860, Sec. 1, 25 Stat. 419; (Codified with some differences in language at 33 USC 601).

Pursuant to this mandate, the Secretary of the Army promulgated regulations to govern the operation of the Mississippi Headwaters reservoirs. *See* 33 CFR 207.340. (Regs. Feb. 4, 1936, as amended at 10 FR 414, Jan. 10, 1945.) The regulations require that other interests are considered in the management of the projects, and require a public interest review for such consideration. *Id.*, para. (d). The regulation also requires that certain levels on the reservoirs be maintained whenever practicable. *Id.* The levels listed in the regulation are higher than the natural lake levels.

Mr. OBERSTAR. Secondly, since legislation did establish in the 1930's the authority for use of the management of the headwaters, what are the purposes for which water may be drawn down as defined in that legislation?

Mr. EIKER. As I understand them—and this is part of the legal analysis that is still going on to determine exactly how the authorizing documents and other legislative documents might impact on the operation of the projects— going back to the original authorizing legislation in 1888, it is my understanding that the projects were authorized for the purposes of supplementing navigation flows in the Mississippi and also for river regulation in general.

So, there is some degree of flexibility in how those projects might be operated.

Mr. OBERSTAR. But there is some question, is there not, as to what the legal authority may be here, whether there is sufficient legal authority to draw water down for water supply purposes?

Mr. EIKER. I would agree with that, and that is one thing that is being reviewed by our Office of Counsel. Yes, sir, I agree with you 100 percent.

Mr. OBERSTAR. That needs to be clarified before any water use plan could be promulgated and put into effect.

Mr. EIKER. It surely will be, yes, sir.

Mr. OBERSTAR. What are the water rights for the riparian owners upstream from the Twin Cities, those at the headwaters? Have those rights been defined?

The reason I raise that is that flowage easements were obtained some 95 years ago for movement of logs downstream for the timber industry and, parenthetically, were obtained at negligible cost. Those easements and rights deriving from the easements are intact, we assume, and we must take care that the rights established nearly 100 years ago are not impaired or infringed by a plan that gives some special consideration to other downstream users.

What consideration is given in the plan—to which we will come in a few moments—of the rights of upstream riparian users?

Mr. EIKER. I think that is, again, sir, all part of the legal analysis that is ongoing. Once that is completed, we will provide that, but I assure you that we are considering both the legal and institutional and other needs and desires of the upstream as well as the downstream interests.

Mr. OBERSTAR. There is a plan being developed in which the Department of Natural Resources and the Governor's office are participating and other interests. In what form will that plan be promulgated? Will it go through the usual Corps notice of proposed rulemaking, or will it take some other form, and what will be the official character of the plan governing the ultimate regulation of release of waters?

Mr. EIKER. The final plan that is developed based on coordination with the State and evaluation of our authorities to modify operation for the purposes that we desire to do that, the coordination and input from all the affected users will be drawn together and a final plan developed. Notices then would be given to the affected parties of what the plan would be, but I do not think that it would go through the kind of procedure whereby we would publish it in the Federal Register or anything of that nature.

That is based on the assumption that we would not be overstepping the legal authorities that we have available to us right now, and that would pretty much be under the authority of the Secretary and then delegated on down to the district engineer to operate within those authorities.

Mr. OBERSTAR. When such a plan is finally agreed upon, will such plan, in addition to being shared with the Governor and, through him, appropriate State agencies and, through your ordinary channels, riparian interests, also be shared with the appropriate committees of the House and Senate?

Mr. EIKER. Yes, we can do that. Yes, sir.

Mr. OBERSTAR. Thank you.

Since the time in the 1970's when we had first early warning about problems yet to come, when we had a drought and drawdown of the Mississippi waters to—I think Mr. Eaton provided me with a figure of 700 roughly cfs at the Anoka gauge. There was a warning

then for all of us if, indeed, warning were needed that conservation measures and other actions should be taken to provide for future such occurrences.

So, what I am interested in both from Mr. Thorne and from the Corps is, what prudent conservation actions have been undertaken by local government interests, by the State of Minnesota, by the Corps of Engineers to provide for conservation of available water resources in the event today should occur?

Mr. THORNE. Perhaps I should take a whack at that one, Mr. Chairman. A number of things have been done.

First of all, we are well aware of the message from 1976. The City of St. Paul has done a considerable amount of work to develop contingency plans to deal with drought situations. The development of the well field and reservoir system in St. Paul has been a good example of that.

The State itself has adopted some additional laws that allow and direct the Commissioner of Natural Resources to establish protected flows for rivers and streams in the State and, when those protected flows are reached, to begin eliminating appropriations from those rivers. We have been using that authority.

We have, for example, eliminated surface water appropriations for irrigation on a number of tributaries to the Mississippi River such as the Long Prairie and the Pomme de Terre and the Rum in recent weeks to maintain flows in the rivers. So, we have developed a system of trigger flows that would allow us to begin eliminating uses on a priority basis. State law has adopted a priority system for water appropriations, and we are following that priority system to manage the flows.

The City of Minneapolis has not developed a contingency plan to deal with drought conditions. They realize, I think, that they need to have such a contingency plan. We have had ongoing discussions with them, and we expect that they are going to be developing such a plan within the next few months.

Minneapolis is in the unfortunate position of not having a long-term reserve and not having an alternative source of supply other than the Mississippi River. So, they are in the most difficult position.

Northern States Power has developed contingency plans and is operating under those contingency plans to reduce their water usage at their plants along the river.

Mr. OBERSTAR. How much savings has been achieved by the conservation measures, it seems to me, the most significant of which is tributaries to the Mississippi River above the Anoka gauge?

Mr. THORNE. Well, it is a little hard to say. The flows have continued to drop in those rivers, of course, but I would expect that we have probably saved through the conservation measures to date 20 percent or something like that in the use in the Twin Cities. Probably about that range.

Mr. OBERSTAR. A 20 percent saving of the ordinary flow?

Mr. THORNE. Of the ordinary, yes, appropriations at the Twin Cities.

Mr. OBERSTAR. Am I correct, Mr. Eaton, that the normal flow of the Mississippi at the Anoka gauge is 6,000 cfs roughly?

Mr. EATON. Mr. Chairman, I believe the figure is a little bit lower than that. I was thinking of somewhere in the area of 5,500 to 6,000 cfs at this time of year.

Mr. OBERSTAR. Yes, at this time of year it may be.

Mr. EATON. At this time of the year, the flow is normally dropping off, and by the time we get into the deepest, hottest part of summer which is August, the flows are down around 5,700 cfs up in that stretch of the river.

Mr. OBERSTAR. So, a flow of one-third at this time is substantially lower than we might anticipate in normal times.

Mr. EATON. Yes, sir, it is.

Mr. OBERSTAR. Now, water appropriation below the Anoka gauge is, of course, not going to affect the total availability of water for metropolitan use, but there are some other factors. The quality of water discharged into the river by the Pigs Eye plant—one of the purposes, I understand, that the plan will serve is pollution dilution, augmentation of river flow to accommodate for the biochemical oxygen demand of sewage effluent from the Pigs Eye plant.

How does the BOD level of effluent from Pigs Eye today compare to, say, where it was 25 or 30 years ago, and how does it compare to where it was 10 years ago?

Mr. EATON. Mr. Chairman, I couldn't answer exactly where it was 10 years ago. I do know that in recent weeks, the BOD level—the demand—has been down to about 5 mg/l which is the minimum State standard. In weeks prior to that, it had dropped down to about 4.5 but had come up in the last week and a half or so due to an algae bloom which was providing some increased dissolved oxygen and the efforts of the metro waste treatment plant in spending some extra money to aerate the water more than once to increase the dissolve oxygen levels.

Mr. OBERSTAR. Is the Pigs Eye plant removing as much BOD demand as it should be?

Mr. EATON. I am really not in a position to answer that, sir.

Mr. THORNE. Mr. Chairman, perhaps I could add to that.

Mr. OBERSTAR. Yes, Mr. Thorne?

Mr. THORNE. Our discussions with PCA indicate that the Pigs Eye plant is functioning very efficiently. In fact, with their re-aeration program, they are doing about as well as could be expected for a plant of that type. So, we believe they are operating efficiently.

They do have certain minimum flows, of course, that are going to have to be there to be able to hold that dissolved oxygen at a high enough level. As was just stated, it has dropped. Actually, it was below 4 ppm down to as low as 3.7 or 3.8. At those levels, if that trend were to continue, we would see some fish kills.

Right now, it is holding at a little over 5, a little over the action levels, and they are functioning very efficiently, and they are putting some extra money in to see that they minimize their impact on the river.

Mr. OBERSTAR. Before I yield to Mrs. Bentley, I want to ask you to obtain for the committee and supply for the record information about the BOD levels of discharges from the Pigs Eye plant.

My concern here is that the metropolitan area has made the investment necessary to carry out their obligation to the river which

is to reduce the demand for oxygen created by their discharges into that river and not come back to upstream users and say help us dilute the pollution that we have dumped into this river so that we avoid the fish kills. That should be their contribution just as wise use and conservation upstream of those riparian users should be their contribution to maintaining water levels in sufficient water for uses downstream.

We all have an obligation to this river, and I know over years that planned improvements in the technology and treatment of sewage in the Twin Cities has been started and stopped, and levels that should have been achieved perhaps were not. I think it is an important step to be re-aerating, but the re-aeration in itself indicates that removal levels are not what they should be.

Mr. THORNE. Yes, Mr. Chairman. I don't necessarily agree that re-aeration indicates that. In fact, the plant was designed to reach certain levels under certain design flows, and the design flows have been exceeded so far as the river is concerned, so they have taken additional steps to re-aerate.

I certainly will get you that information within the next few days.

Mr. OBERSTAR. Well, we need to know. That is not particularly your problem area. That is the responsibility of the Minnesota PCA, and we want to get that information straight.

[The following was received from Mr. Thorne:]

MINNESOTA POLLUTION CONTROL AGENCY
Division of Water Quality

Agenda Item Control Sheet

BS/ MR

AGENDA # WQ-1

MEETING DATE: August 23, 1988 Tom S. APPEARANCE REQUESTED - YES: ___ NO: X
SCHEDULED TIME: _____

PREPARED BY: Peter J. Gillen RCF DATE MAILED: August 12, 1988

SUBJECT: Metropolitan Plant Sanitary Sewer Extensions and Status Report for June and July 1988

LOCATION: N/A (City) N/A (County)

TYPE OF ACTION:

Permit	___	Request for hearing	___	New	___
Stipulation	___	Request for legal action	___	Modification	___
Contract	___	Variance request	___	Extension	___
Policy	___	Rulemaking	___	Revocation	___
Information	X	Administrative order	___	Other	___
Consent Order	___	Request for Response Action	___		
Negative Declaration	___				

RECOMMENDED ACTION:

Issuance	___	Approval	___	No action needed	X
Denial	___	Authorization	___		

ISSUE STATEMENT:

Pursuant to the Agency Board delegation of authority to the staff to issue sanitary sewer extension permits and due to the Board's continuing interest in the Metropolitan Plant and its compliance status, this report is provided to describe sanitary sewer extension permits issued since the last report and to summarize Metropolitan Plant compliance status.

ATTACHMENTS:
1. List of sewer extensions

MINNESOTA POLLUTION CONTROL AGENCY
Division of Water Quality
Regulatory Compliance Section

Metropolitan Plant Sanitary Sewer Extensions and Status Report for June and July 1988

August 23, 1988

ISSUE STATEMENT

Pursuant to the Agency Board delegation of authority to the staff to issue sanitary sewer extension permits and due to the Board's continuing interest in the Metropolitan Plant and its compliance status, this report is provided to describe sanitary sewer extension permits issued since the last report and to summarize Metropolitan Plant compliance status.

I. Background:

Approximately half of the wastewater in the State of Minnesota flows to and is treated by the Metropolitan Plant of the Metropolitan Waste Control Commission. Considerable funds have been expended in the last decade at this plant and a continuing interest has been expressed by the Board for being apprised of the increase in flow to the plant and its compliance status. Flow increases are caused by the continuing residential, commercial and industrial expansion in the Metropolitan area with subsequent expansion of the sanitary sewer system in that part of the Metropolitan area which is serviced by the Metropolitan Plant. Increased flows increase the demand for treatment and can affect the quality of effluent going to the Mississippi River.

II. Discussion:

Fourty-nine (49) permits for sewer extensions tributary to the Metropolitan Plant were issued during the June and July 1988

period covered by this status report. The ultimate flow from newly issued extensions, when development is complete, is estimated to be 5.59 MGD. This would represent a 2.78% increase above the 1987 annual average flow at the Metropolitan Plant of 201 MGD.

In the long term, the Metropolitan Plant effluent quality complies with effluent limitations and the following table summarizes that compliance:

Time Period	Parameter	Limitation (mg/l)	Result (mg/l)
Oct. 1, 1985 - May 30, 1986	$CBOD_5$	24	10.5
	TSS	30	12
June 1, 1986 - Sept. 30, 1986	$CBOD_5$	18	8
	TSS	30	8
	Ammonia	8	0.7
Oct. 1, 1986 - May 30, 1987	$CBOD_5$	24	13
	TSS	30	12.5
June 1, 1987 - Sept. 30, 1987	$CBOD_5$	18	7.8
	TSS	30	10.3
	Ammonia	8	0.6
Oct. 1, 1987 - May 30, 1988	$CBOD_5$	24	7.8
	TSS	30	8.5

In the short term, the Metropolitan Plant effluent quality complies with effluent limitations and the following table summarizes that compliance:

Parameter	Limitation (mg/l)	July 1988 Preliminary Results (mg/l)	June 1988 Actual Results (mg/l)	May 1988 Actual Results (mg/l)
$CBOD_5$	24	6	6	6
TSS	30	8	11	6
Ammonia	8	0.9	0.8	N/A

Starting January 1, 1986, final effluent limitations for metals and toxics became effective. The Metropolitan Plant complies with the limitations and the following table summarizes that compliance:

Metal/Toxic Parameter	Limitation (ug/l)	July 1988 Preliminary Results (ug/l)	June 1988 Actual Results (ug/l)	May 1988 Actual Results (ug/l)
Cadmium (Cd)	12	4	3	3
Copper (Cu)	40	30	30	30
Cyanide (CN)	100	20	20	20
Mercury (Hg)	1	0.2	0.2	0.2

Starting on June 1, 1986, the final effluent limitations for chlorine residual became effective. The Metropolitan Plant complies with the limitations and the following table summarizes that compliance:

Residual Chlorine Parameter	Limitation (ug/l)	July 1988 Preliminary Results (ug/l)	June 1988 Actual Results (ug/l)	May 1988 Actual Results (ug/l)
Monthly Average	26	0	0	0
Daily Maximum	100	0	0	0

III. Conclusion:

Forty-nine (49) sewer extension permits were issued during the period covered by this report. Analytical results for

effluent quality for the months of May and June 1988 demonstrate that the Metropolitan Plant complied with its NPDES permit limits for all parameters. Preliminary results for the month of July 1988 reveal that the Metropolitan Plant should comply with its NPDES permit limits for all parameters when the final analyses are completed.

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY

METRO Disposal System Permits Issued During Specified Month
As Delegated by the MPCA Board

DATE RECD	FILE NO	CITY	LINEAR FEET	PIPE SIZE	FLOW MGD	BOD #/DAY	ACTION DATE
19-Feb-1988	15400	Shoreview	1,354	8"	0.007	11.7	30-Jun-1988

Plant: Metro

—Description Summary—
Old Farm Village 2nd Addition sanitary sewer, watermain, storm sewer, and streets
Residential: Number of new homes: 25

24-Mar-1988	15449	Hopkins	611	18" & 18"	0	0	30-Jun-1988

Plant: Metro

—Description Summary—
7th Street South, 9th Avenue South, and 11th Avenue South utility and street repairs

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30-Mar-1988	15463	Oakdale	868	8"	0.052	93.6	30-Jun-1988

Plant: Metro

—Description Summary—
County State Aid Highway No. 35 surfacing, sanitary sewer, water main, storm sewer, and bituminous walk
Commercial/Industrial: One parcel = 2.9 acres

14-Feb-1988	15503	Plymouth, New Hope	30,000	36" & 42"	10.8/3.1	11485/3950	3-Jun-1988

Plant: Metro

—Description Summary—
Plymouth Interceptor improvements: 1) Plymouth force main; 2) Plymouth/New Hope Lift Station expansion. No. of Pumps: 10. #1 (Plymouth): force main length: 30,000 L.F.; forcemain diameter: 36" & 42". Other: Plymouth - existing population of 39,300 & 67,500 for future; New Hope - population of 23,230

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY

METRO Disposal System Permits Issued During Specified Month
As Delegated by the MPCA Board

DATE RECD	FILE NO	CITY	LINEAR FEET	PIPE SIZE	FLOW MGD	BOD #/DAY	ACTION DATE
16-May-1988	15558	Coon Rapids	3,739	8"	0.024	40.8	7-Jun-1988

Plant: Metro

—Description Summary—
Debonair Estates - Improvement Project 87-49
Residential: Number of new homes: 52

17-May-1988	15562	Coon Rapids	620	8"	0.00462	7.85	7-Jun-1988

Plant: Metro

—Description Summary—
Mitchell's Park - Project 88-32
Residential: Number of new homes: 14

18-May-1988	15563	Plymouth	2,167	8"	0.072	120.	7-Jun-1988

Plant: Metro

—Description Summary—
S.J. Groves Office Park area, Phase II
Residential: Number of new homes: 144; number of existing homes: 4
Mixed commercial/office space

19-May-1988	15564	White Bear Lake	3,172	8"	0.02	37.8	7-Jun-1988

Plant: Metro

—Description Summary—
White Bear Meadows
Residential: Number of new homes: 60

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY

METRO Disposal System Permits Issued During Specified Month
As Delegated by the MPCA Board

DATE RECD	FILE NO	CITY	LINEAR FEET	PIPE SIZE	FLOW MGD	BOD #/DAY	ACTION DATE
25-May-1988	15579	White Bear Lake	1,389	8"	0.0096	15.3	23-Jun-1988

Plant: Metro

—Description Summary—
The Cloisters at Birch Lake
Residential: Number of new homes: 6

25-May-1988	15580	Andover	550	8" & 10"	0.002	3.9	23-Jun-1988

Plant: Metro

—Description Summary—
Round Lake Boulevard - Project 88-4; Brandon's Lakeview Estates - Project 88-7
Residential. Number of new homes: 2; number of existing homes: 4

31-May-1988	15585	Brooklyn Park	12,282	8" & 10"	125	212	23-Jun-1988

Plant: Metro

—Description Summary—
Improvement No. 88-05
No. of pumps: 2. Length of forcemain: 2,350'; forcemain diameter: 6"
Residential: Number of existing homes: 133

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY

METRO Disposal System Permits Issued During Specified Month
As Delegated by the MPCA Board

DATE RECD	FILE NO	CITY	LINEAR FEET	PIPE SIZE	FLOW MGD	BOD #/DAY	ACTION DATE
6-Jun-1988	15601	Medina	600	8"	0.0038	6.43	23-Jun-1988

Plant: Metro

—Description Summary—
Independence Estates utility and street improvements
Residential: Number of new homes: 12

9-Jun-1988	15609	Town of Forest Lake	N/A	N/A	None	None	29-Jun-1988

Plant: Metro

—Description Summary—
Lift Station #7 force main replacement
No. of Pumps: Existing lift station. Length of forcemain: 5,514'; forcemain diameter: 10"

10-Jun-1988	15613	Plymouth	220	8"	0.02996	62.5	30-Jun-1988

Plant: Metro

—Description Summary—
Plymouth Office Commercial Park
Other: 220 linear feet of extension to potentially service adjoining property

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15-Jun-1988	15620	Minneapolis -St. Paul	455	18"	.0085	20	29-Jun-1988

Plant: Metro

—Description Summary—
1988 miscellaneous construction for International Airport
Commercial: Convenience center (gas + car wash)

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY

METRO Disposal System Permits Issued During Specified Month
As Delegated by the MPCA Board

DATE RECD	FILE NO	CITY	LINEAR FEET	PIPE SIZE	FLOW MGD	BOD #/DAY	ACTION DATE
27-May-1988	15591	Spring Lake Park	700	8"	0.005	6.0	6-Jul-1988

Plant: Metro

—Description Summary—
Spring Pines Business Center utility and street improvements
Commercial: 4-acre site with probable office/warehouse land use

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3-Jun-1988	15599	Plymouth	455	8"	.027	45.9	26-Jul-1988

Plant: Metro

—Description Summary—
Prime West Business Park 2nd Addition
Commercial/Industrial: Office/business usage

7-Jun-1988	15602	Champlin	0	N/A	0.261	653	22-Jul-1988

Plant: Metro

—Description Summary—
Soderlind's Additions and Champlin Plaza Estates - Impr. Proj. 87-10 & 87-11
No. of Pumps: 2 Forcemain length: 1,105'; forcemain diameter: 8"
Residential: No. of new homes: 167 (72 sr. housing units). Commercial: 15 retail acres, 1.5± library acres, .5 day care acres & .75± fitness ctr. ac.

15-Jun-1988	15619	Hugo	2,805	8"	0.0073	12.4	26-Jul-1988

Plant: Metro

—Description Summary—
Bald Eagle Estates sanitary sewer and street improvements
Residential: Number of new homes: 27

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY

METRO Disposal System Permits Issued During Specified Month
As Delegated by the MPCA Board

DATE RECD	FILE NO	CITY	LINEAR FEET	PIPE SIZE	FLOW MGD	BOD #/DAY	ACTION DATE
17-Jun-1988	15634	Maple Grove	1,110	8"	.0029	4.9	7-Jul-1988

Plant: Metro

—Description Summary—
Fish Lake Regional Park Phase I site work
Other: Regional recreational park facility

17-Jun-1988	15635	Woodbury	3,700	8"	0.014	16.8	7-Jul-1988

Plant: Metro

—Description Summary—
County Place 1st Addition - utility and street improvements
Residential: Number of new homes: 40

17-Jun-1988	15636	Woodbury	5,625	8"	0.024	29.8	20-Jul-1988

Plant: Metro

—Description Summary—
Wedgewood Park 1st Addition utility and street improvements
Residential: Number of new homes: 71

22-Jun-1988	15641	Plymouth	2,291	8"	0.0076	12.85	7-Jul-1988

Plant: Metro

—Description Summary—
Fox Run 4th Addition
Residential: Number of new homes: 24

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MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY

METRO Disposal System Permits Issued During Specified Month
As Delegated by the MPCA Board

DATE RECD	FILE NO	CITY	LINEAR FEET	PIPE SIZE	FLOW MGD	BOD #/DAY	ACTION DATE
29-Jun-1988	15656	St. Paul Park	1,880	8"	0.01096	18.6	26-Jul-1988

Plant: Metro

—Description Summary—
Stevens Ridge Phase III grading, utilities, and streets
Residential: Number of new homes: 40

30-Jun-1988	15660	Vadnais Heights	1,500	8" & 10"	.073	124.6	14-Jul-1988

Plant: Metro

—Description Summary—
Wind Song Apartments
Residential: Number of new homes: 7 units @ 24/unit = 168

1-Jul-1988	15662	Coon Rapids	307	10" & 8"	0.011	18.7	26-Jul-1988

Plant: Metro

—Description Summary—
Evergreen Boulevard and 93rd Avenue, Evergreen Business Park East - Project 88-38
Industrial. Two zoned properties with a total of 5.5 acres

Mr. OBERSTAR. The Chair recognizes the gentlewoman from Maryland.

Mrs. BENTLEY. Thank you, Mr. Chairman.

Have there been any predictions of any kind—and I know how hard it is to make these predictions—on the short and long-term prospects for precipitation in the upper Mississippi River drainage basin?

Mr. EIKER. The National Weather Service, of course, puts those forecasts out, and about the longest that they will predict is on the order of about 30 days. The 30-day forecast for the upper Midwest is for higher than normal temperatures and less than normal precipitation. That is about as detailed or definitive as they get.

Mrs. BENTLEY. What is the normal precipitation up there at this time of the year?

Mr. EIKER. I couldn't tell you exactly. Perhaps Mr. Eaton could.

Mr. EATON. The normal precipitation for this time of year would be, for the month of July up in that area, something on the order of 3.3 inches, I believe.

Mrs. BENTLEY. And there has been none so far?

Mr. EATON. There has been rainfall within the last week. In fact, we have had two occurrences of rainfall. Just this past Monday, we had a fairly general rainfall that produced rainfall amounts of .5 to 1.5-plus inches over a fairly wide area of the central Minnesota area.

Mrs. BENTLEY. That is actually better than a lot of the United States has received in the past month.

Mr. EATON. Yes.

Mrs. BENTLEY. What amount of rainfall would have to occur in the near term in order to avert the proposed plan for Headwaters lakes release?

Mr. EATON. At the present time, with the little bit of rain that we have gotten, under the tentative plan using the 1,000 cfs trigger mechanism, if we continue to get small amounts of rainfall, say, once a week, it might well avert the whole situation and push this thing right out into the fall.

Right now from the rain that we have gotten, we are anticipating that—well, the discharge above the trigger flow is about 100 cfs at least, yesterday, it was 100 cfs above the trigger flow, and with this rain, it is going to be slowly coming up over the next several days and then will take additional time to recede. We feel that we have probably gained a couple of weeks with the rain that has fallen, and if we get some more in the next week or so, that will push it back even further.

Mrs. BENTLEY. So, every tiny little bit is a help.

Mr. EATON. Yes, that is correct.

Mrs. BENTLEY. What are some of the conservation measures that are currently being employed by the residents in the muncipalities of Minneapolis and St. Paul?

Mr. THORNE. I can answer that. The City of Minneapolis has at present instituted an odd-even sprinkling ban. So, outside watering is limited to every other day for everyone. St. Paul has a voluntary sprinkling ban at the present time, but they have agreed, as I testified earlier, that when the 1,000 cfs level is reached, they will then

reduce their appropriation from the river to their average winter use which is about half of their normal summer use.

Mrs. BENTLEY. I see. So, those are the additional steps that they have already planned in the future should they need any additional measures.

Mr. THORNE. Yes, that is correct. They have agreed essentially to go to maximum conservation measures, eliminating nearly all outdoor uses of water when that 1,000 cfs trigger is reached.

Mrs. BENTLEY. To what extent have the Corps and the DNR consulted with the residents in the affected communities at the Headwaters lakes region in formulating plans for down the road?

Mr. THORNE. Actually, we have done a considerable amount of consultation with the communities. There are hearings today in Walker this evening and tomorrow in Grand Rapids to discuss this issue. We have been in regular communication with the resort community.

Two days ago, we had a lengthy meeting with representatives of the Leech Lake Band of Chippewa Indians. We have included representatives from the resort industry on the Drought Task Force. So, they are and have been involved from the earlier days of discussion of this possibility.

Mrs. BENTLEY. So, you have made it a point to bring everybody in on it?

Mr. THORNE. That is correct. Our intention is that everyone is going to have to be a part of the solution and bear part of the pain.

Mrs. BENTLEY. And have the Corps and the DNR conducted economic and environmental impact assessments of the proposed drawdowns?

Mr. THORNE. No, we haven't done a specific economic impact study. We have not had the opportunity nor the funds to do that.

Mrs. BENTLEY. Will any increased flows created by additional releases from the Headwaters lakes be felt in areas downstream from the Twin Cities and, if so, how far below?

Mr. EIKER. From a practical standpoint, madam, once you get below the Twin Cities, even the maximum releases that we would be talking about here would only be a couple of hundred cfs, and they would not have any measurable impact on navigation or anything else on down further.

Mrs. BENTLEY. We have heard a lot about the barge movements in the lower Mississippi and the difficulties they are having. Have we had similar difficulties with commercial navigation on the upper Mississippi because of the low flows?

Mr. EIKER. We have not at this point in time had the same kind of difficulties up there. That is primarily because of the different nature of the system.

In the lower river below St. Louis, it is one of open river navigation kept open to the 9-foot authorized depth through dredging and through natural inflows of water and through releases from reservoirs also. The upper river is a series of locks and dams which provide for slack water and assure navigation depths under much lower flow conditions.

Mrs. BENTLEY. Have the barge movements, or the lack of barge movements, in the lower Mississippi translated into fewer waterborne commodity movements out of the Twin Cities area?

Mr. EIKER. I can't answer that exactly for the Twin Cities area. I don't think we have that kind of information, but I would anticipate that with the restrictions in the lower portion of the river, it would translate into less movement on the upper portion also.

Mrs. BENTLEY. Of course, as all of your barges get tied up down below, they really can't come back to carry the cargo.

Mr. EIKER. That is correct.

Mrs. BENTLEY. Thank you, Mr. Chairman.

Mr. OBERSTAR. Thank you. I appreciate your questions many of which I had in mind myself.

I would like to get some factual information on the record here so that we can better evaluate the plan and the manner of usage. First, under the plan as you have described it in your testimony and as each of you understands it, at that point below 1,000 cfs and to maintain flow at 800 cfs, how much water will be needed from each of the headwater lakes expressed in cfs outflow from those lakes?

Mr. EIKER. Let me ask Mr. Eaton to address that specific question.

Mr. EATON. Mr. Chairman, under those conditions, we are looking at National Weather Service projections and some of our own projections on the stream flow up in the region. It looks like a stable base flow exists somewhere in the 500 to 700 cfs area, and 550 has been the number which has generally been picked out by the National Weather Service and tends to be maybe a little conservative, but it is probably better to err on that side.

That would mean that we would have to make up the shortfall, if such a plan were to be implemented, of about 250 cfs which, if you look at transmission and evaporation losses between the headwaters and the cities, would probably mean we would have to release something just over 300 cfs from the reservoirs. That would be a total discharge.

As far as how much would come out of each one, that is something that is still in the investigative process. We are gathering information regarding impacts and those types of things.

Mr. OBERSTAR. Isn't it correct that two lakes, Winnibigoshish and Leech, account for 75 percent of the water of the headwaters?

Mr. EATON. That is correct, sir.

Mr. OBERSTAR. So, will the release be distributed proportionately among the lakes?

Mr. EATON. At this time, I don't have an answer for that. I can tell you that we have, as we said in our prepared testimony, looked at several alternatives. A uniform drawdown, although it needs to be looked at, probably wouldn't be very practical, because some of the lakes right now are already suffering more severe impacts than others, and there are certainly questions of Native American rights on some of the lakes.

So, whatever plan is developed, if it should be implemented, would, in my opinion, have to be based on some sort of selective withdrawal which tries to distribute damages or any adverse impacts in an equitable fashion.

Mr. OBERSTAR. And also distributed in such a way as to recognize the different sizes and capacities of the several lakes of the headwaters.

Mr. EATON. That is correct.

Mr. OBERSTAR. Does the plan also include consideration of long-term effects, that is, drawing down water substantially at this time of year and assuming the worst, that is, that current conditions project into the fall? What will be the effect on winter flow which is ordinarily lower and what will be the consequences of the anticipated drawdown over a period of time for that winter flow?

Mr. EATON. Normally, Mr. Chairman, we begin to draw those reservoirs down after Labor Day up to October 1 in that area. We begin to start a calculated withdrawal or drawdown of the reservoirs by releasing more water to make flood storage available to accommodate the spring snow melt runoff.

Mr. OBERSTAR. But you may be at that point before you get to the fall.

Mr. EATON. That is correct, and if that should occur, what we would be doing then is looking at just releasing the minimum flows through the winter and evaluating this coming winter's snowpack and water content in the basin to determine if in fact there is any concern about flood control. If there weren't, we would just keep releasing minimum flows into next spring.

Mr. OBERSTAR. Do you have a table of minimum flows from each of the lakes expressed in cfs?

Mr. EATON. Yes, sir.

Mr. OBERSTAR. And what are current flows with respect to those tables? And I would like you to submit those tables for the record.

Mr. EATON. Yes, I will be happy to submit that.

[The following was received from Mr. Eaton:]

MISSISSIPPI RIVER HEADWATERS RESERVOIRS
TABLE OF MINIMUM AND CURRENT OUTFLOWS

RESERVOIR/LAKE ELEVATION RANGE	MINIMUM OUTFLOW IN CFS STATE OF MINNESOTA RECOMMENDATIONS (1)	MINIMUM OUTFLOW IN CFS SECRETARY OF THE ARMY REGULATIONS (2)	CURRENT OUTFLOW IN CFS (3)
WINNIBIGOSHISH			100
above El. 1294.9	100	150	
below El. 1294.9	50	150	
LEECH			100
above El. 1292.7	100	70	
below El. 1292.7	50	70	
POKEGAMA	limited to the sum of outflow from Leech and Winnibigoshish when Pokegama is below El. 1270.4 or any required elevation above 1270.4 for particular time of year	200	200
SANDY			20
above El. 1214.3	20	80	
below El. 1214.3	10	80	
PINE			30
above El. 1225.3	30	90	
below El. 1225.3	15	90	
GULL			20
above El. 1192.8	20	30	
below El. 1192.8	10	30	

(1) Based on April 19, 1963 Order of the Commissioner of Conservation, pursuant to Minnesota Statutes 1961, Sections 110.47 through 110.53, regarding operation of the dams controlling the Mississippi headwaters lakes. No formal agreement exists between the State of Minnesota and the Corps of Engineers regarding the Commissioner's Order. However, in actual practice the St. Paul District, Corps of Engineers, attempts to coordinate regulation of the headwaters lakes in conformance with the 1963 Commissioner's Order whenever possible, and when not in conflict with authorized project regulation.

(2) Pursuant to authority contained in the River and Harbor Act approved August 11, 1888, the Secretary of War, George H. Dern, prescribed regulations for the use and administration of the Mississippi headwaters reservoirs under date of February 4, 1936. The minimum flow provisions of these regulations remain in effect. These flow provisions prescribed minimum average annual outflows from each of the six headwaters reservoirs, but did not prescribe absolute minimum outflows for any given point in time; only that the annual average of the daily outflows be at or above the values listed in the above table. These provisions allow the possibility of zero outflow from the headwaters reservoirs during drought conditions, as long as higher outflows at some time during a year result in fulfillment of the minimum average annual outflow requirement.

(3) Current outflow on July 14, 1988. Outflows have been at July 14, 1988 levels for the prior several months.

Mr. EATON. The discharges from all the reservoirs are at the specified minimums.

Mr. OBERSTAR. At the specified minimums?

Mr. EATON. Yes, sir, and they have been there for two months.

Mr. OBERSTAR. Where do the lake levels stand, whether you express those in feet or feet above sea level as you ordinarily do?

Mr. EATON. The lake levels—rather than give you elevation figures which probably wouldn't mean anything to this committee right now, I can provide that information for the committee's use as soon as I get back to the district office. In general terms, we regulate the lakes to maintain a desired summer level, and then we have a fluctuation of plus or minus .2 foot around that desired summer level to allow for the effects of wind and periodic rainfall, et cetera.

The situation up there right now is that Leech Lake is about .8 or .9 feet below its normal summer operating level. Pine River Reservoir is about .5 feet below its normal summer operating level. Sandy Lake is right at the bottom of its summer operating band which means that it would be about .3 below the desirable level for the summer.

Winnibigoshish is right at the bottom of its summer operating band which means it is about .2 feet below where it would normally be, and Pokegama is still within its summer operating range simply because it is immediately downstream and is fed by the two upper reservoirs, Winnibigoshish and Leech. So, there is still some control over levels there. Gull Lake which is the final one is about .1 feet below the bottom of its summer operating range which means it is about .3 feet below the desirable level.

Mr. OBERSTAR. Winnibigoshish is what, about 179 square miles of reservoir capacity?

Mr. EATON. I don't have the number right off the top of my head, but I think it is less than that.

Mr. OBERSTAR. There is the lake and then there is the dam pool. My understanding is that the dam pool itself is 179 square miles.

Mr. EATON. It is more like 110.

Mr. OBERSTAR. That is the total lake area.

Mr. EATON. Yes, the total acreage is about 70,000 acres. So, if that were divided by 640, that would give you square miles.

Mr. OBERSTAR. Then, the lake level has ordinarily been held at about 9 feet to just under 10 feet in order to minimize shoreline erosion over the last 25 or 30 years, as I understand it. The late summer or early fall drawdown usually is about a foot of lake level.

What you are saying now is that we are at that low level of Lake Winnibigoshish, the biggest of the lakes and one of usually the largest capacity. How much more water then can be drawn down if we are at that low flow level?

Mr. EATON. Well, on Winnibigoshish within the normal operating limits, the reservoir could be drawn down as low as 1294.9. That would be the lower limit that it could possibly be drawn to. Right now, it is at about 1297.8.

Now, we don't normally draw it down that low every year. We normally take it down in the area of 1296.9 which means there is about 7.7 feet to go to get down to that area.

Mr. OBERSTAR. How long does it take at your ordinary outflow level to reach that lowest level of operating mode?

Mr. EATON. I can tell you that a discharge of about—you see, it depends on the time period you are talking about, but for the sake of your interest, we will assume a 45-day period, a month and a half period. A discharge of 200 cfs would lower the lake .3 feet. So, 600 cfs for a month and a half would lower the lake down to that .9 feet.

Mr. OBERSTAR. Excuse me, would you repeat that?

Mr. EATON. A flow of about 600 cfs would reduce the level of Winnibigoshish by about .9 feet in a 45-day period.

Mr. OBERSTAR. Under that scenario, is it right to assume that the metropolitan area could expect water flows for about a 45-day period after which, if the drought continues, the well has run dry or the reservoir has run dry?

Mr. EATON. Well, that is not exactly correct, sir. The normal drawdown we use each spring is designed to allow for reasonable storage of snow melt runoff but also to provide reasonable assurance that the reservoir will be filled to normal summer levels.

There are levels below that to which the reservoir could be drawn down, depending upon the situation.

Mr. OBERSTAR. What are those levels for each of the six lakes?

Mr. EATON. Does the Congressman have a copy of the general operating data for the Mississippi River headwaters reservoirs which I sent to his office recently?

Mr. OBERSTAR. No. I was looking for that this morning in our mail, and somehow we still do not have that.

Mr. EATON. Okay. I have some copies with me which I can provide.

Mr. OBERSTAR. You had indicated last week you would send that information out, but I think it got stuck in the low flow someplace.

Mr. EATON. The lower levels for all of the lakes I can just read off.

Winnibigoshish would be an elevation of 1294.9. Leech Lake would be 1292.7. Pokegama would be 1270.4. Big Sandy would be 1214.3. Pine River would be 1225.3. Gull Lake would be 1192.8. Those are all feet above mean sea level.

Mr. OBERSTAR. I would ask both the State and the Corps witnesses, is there guarantee in this plan of management that the levels will not go below those numbers?

Mr. THORNE. Perhaps I could begin, Mr. Chairman. What we are discussing at the present time is a check point. For example, if the levels were to drop in that 4 inch range, we would then not reduce levels on the reservoirs any further without engaging in additional consultation and evaluation of the situation.

So, from the State side, we are thinking about some sort of an internal review and saying we are only going to reduce the levels so much, recommend that they be reduced so much. At that point, we would go through a complete round of consultation and reevaluation before we would consider going further.

I am not sure how that fits into the Corps' thoughts on the situation.

Mr. OBERSTAR. Do those levels indicate demarcation points or thresholds beyond which damage of various kinds will result to the

headwater lakes, such as the lowering of dissolved oxygen levels, adverse effects on aquatic life, adverse effects on wild rice beds?

Mr. EATON. No, sir, they don't. There are effects any time you deviate from the normal or desirable summer level either up or down. You are going to start to accrue damages of one type or another.

Mr. OBERSTAR. Is there a scientifically established lower level than those that you have cited at which adverse consequences result and has that information been publicly debated?

Mr. EATON. I am not sure that I understand the question, sir.

Mr. OBERSTAR. The question is there must be some threshold level for each of the lakes below which further water is drawn down or evaporated through natural means there are adverse consequences on the fish, on aquatic plants, on shoreline. What I am asking is whether the Corps and the DNR together have established such levels for the lakes.

Mr. EATON. I would say that the statement I just made earlier is the answer to that, and that is that any time you deviate from the desirable summer levels either up or down, you are going to begin to accrue adverse impacts, and those impacts will increase the further down you go.

Mr. OBERSTAR. Of course, we understand that there are other atmospheric conditions that will have effects as you go along, but I am saying we don't know what those are. We only know what we have today, and if today's conditions persist on into the fall, there is some time frame for the two effects, one of drawdown and the other of nature's own evaporation of those waters that will operate to continually lower the level of the headwaters.

At some point, we will reach a threshold of lake levels on those six lakes below which you have adverse effects. You may have fish kills. You may have algae blooms. You may have more plant life growing because the sunlight can reach down to lower levels at greater intensity and more plants are growing and consuming more oxygen in those lakes.

Then, you have adverse economic effects on tourism and the basis of the headwaters economy.

So, just as there are consequences for the metropolitan area, there are some consequences for the headwaters, and further drawing down those waters at the headwaters will not, because flows will be so low, substantially benefit lower river users and will significantly adversely affect upper river users.

Mr. EATON. As a matter of fact, right now, some of the headwaters reservoirs are already experiencing some problems. An example would be Pine River. That reservoir is more or less a chain of lakes which includes perhaps as many as fifteen lakes, and there are interconnecting channels between these lakes which provide a means of navigation from one lake to another.

The lake is loaded with a lot of tree stumps that are just below the surface of the water in some locations. They were cleared out before the lake was raised. Those present some problems to navigation.

So, there are some impacts there and restriction of navigation for resorters to get around does have an effect on the resort industry.

If you look at fish or waterfowl, things like that, fish in particular, I think the situation is highly variable depending upon the level. The level could be low and you could still have a fairly good habitat for fish depending on what the air temperatures and water temperatures are.

This year, we have had very high temperatures, a lot of wind, and I don't know exactly what the status of the fishery in the lake is. The DNR has testified earlier that it is in pretty good shape right now.

Mr. OBERSTAR. Let me ask Mr. Thorne to respond to the same set of questions.

Mr. THORNE. Mr. Chairman, I certainly agree with your analysis. At some point, we are going to see unacceptable impacts. I have asked our fisheries managers and wildlife managers if withdrawals in the range that I have spoken of and the Corps has spoken of would have serious fish and wildlife impact or significant fish and wildlife impact, and their response to that is no, there would not be at this point.

Now, at some point, there would be, which is why I suggest that we have check points and we have limits and reviews as we proceed through this process and involvement of all interested and affected people.

So, fish and wildlife impacts in this 2 to 4 inch range that we are talking about or this 300 cfs flow we don't think are significant. Our view is that the impacts to the resort community are primarily in the areas of restricted navigation at harbor mouths and at connections between lakes and that we are developing a program to assist in dredging to try to manage through some of those problems where they exist.

The Governor just recently has asked for $50,000 from our general contingency appropriation to assist in dredging on the headwater reservoirs if that should become necessary if we have releases.

Mr. OBERSTAR. As you proceed, should the plan be implemented, should the Governor be required by events to make the disaster declaration and the drawdown begin following that three-day period, you then anticipate it as part of the plan to reevaluate periodically as you proceed as conditions either change or remain the same?

Mr. THORNE. Mr. Chairman, that certainly would be our recommendation, and the Drought Task Force has been meeting weekly and will continue to meet as necessary to address the problem.

Mr. OBERSTAR. But what I am looking for is some absolute limit below which you say thus far and no farther in drawing down water out of those lakes.

Mr. THORNE. Mr. Chairman, I can't give you that figure today. We are in the process of talking with the communities and with the Chippewa Tribe and with the Corps. I think any plan that we would develop would clearly have those kinds of internal controls, and we will include them before we implement the plan.

Mr. OBERSTAR. The emergency drought authority contemplated in a bill introduced yesterday by the Chairman of the House Appropriations Committee as part of the supplemental appropriations bill—Mr. Eiker, you may be familiar with that; I think the Corps contributed some preliminary language as a drafting service at the

request of the Appropriations Committee—has been modified at the request of this chairman as follows:

"The Secretary of the Army, acting through the Chief of Engineers, within existing law and within available funds"—and that language specifying within existing law is important—"is directed to conduct emergency drought relief activities" for listed purposes which I won't enumerate "as provided by existing law in cooperation with local authorities, utilize water in any reservoir operated by the Secretary for emergency water supply purposes, provided that no additional authority to change the existing situation in regard to the Great Lakes or the reservoirs at the headwaters of the Mississippi River is provided by this language."

That language is written in. We recognize there is an emergency. We recognize there is a need to respond to a variety of uses, but that language is written in there to make it clear that there is no new authority provided under this appropriation bill beyond that which already exists and to recognize that there must be some limits upon the drawdown so that there will be no adverse effects upon the supply of water that we must maintain both for the headwaters riparian users and the lower river riparian users.

That language I want to call to your attention. I want to make clear that it is written with a very distinct purpose and might possibly be altered further, depending on what develops. Following the upcoming recess of Congress, this appropriation bill will be one of the first orders of business when we resume our session.

Mr. Eiker, do you have any comment on that language?

Mr. EIKER. We are presently evaluating the impact of that on our activities. Our Office of Counsel is looking at that right now. Of course, we would be happy, if you desired, to provide the results of that analysis for the record of these hearings.

Mr. OBERSTAR. We would welcome that information and will include it at this point in the record.

Mr. EIKER. Okay, we will provide that.

From what we have done so far, we have looked at some of the laws that are in place right now that are pertinent to this piece of legislation. Just to summarize quickly, Public Law 84-99 which is our emergency operating authority has certain aspects in there that can be brought to bear on providing emergency water supplies.

The Water Supply Act of 1958, as amended, gives the Secretary some authorities to reallocate storage within existing projects, but that seems to be on a more permanent type basis. We do have sections 6 and 8 of the Flood Control Act of 1944 which gives us certain authorities to appropriate, if you will, surplus water at our projects.

Then, the other acts are more specific. The authorization in connection with the Mississippi River deep water navigation project, specifically to put in the sill in the lower Mississippi as a salt water barrier. The other one that we have identified to date has to do with our ability to provide technical planning services to the States in many of these areas.

That is about where we have gotten to date, but as I say, our Office of Counsel is doing a much more thorough analysis.

[The following was received from Mr. Eiker:]

The proposed legislation would provide the Secretary of the Army with no new substantive authority. It specifically does not provide additional authority to reallocate available storage in Corps lakes. However, we believe that the language provides the Secretary with more flexibility to reprogram funds within existing law for drought-related activities, for example to dredge shoals impeding navigation.

Mr. OBERSTAR. Let me just return to a factual point, and that is conditions remaining the same, if the drawdown were initiated under the terms planned and at the levels anticipated, there is reserve capacity of about 45 days in the headwater lakes to serve the required flow of 300 cfs outlet from the headwaters. Am I stating that correctly, Mr. Eaton?

Mr. EATON. Mr. Chairman, I don't know if I would call it a reserve capacity, because those releases would be coming from water that exists below the ordinary desired summer levels, but there certainly would be that amount of water over that period of time which would not have a severe impact.

I can give you an idea of how much we are talking about here. If we are just looking at a uniform release in terms of the lake level, a uniform drawdown of about .13 feet off of all six of those reservoirs, we would be able to provide the 300 cfs. That includes accommodations for evaporation.

Mr. OBERSTAR. That includes the evaporation as the water moves down river?

Mr. EATON. No, sir. I guess I need to correct that. The .13 feet would be the amount of water required to make up the 300 cfs which would be released in addition to the minimum flow.

Mr. OBERSTAR. Is there any significant evaporation loss as the water moves over roughly 23 or 24 days to the Anoka gauge?

Mr. EATON. We are estimating somewhere in the neighborhood of 20 to 25 percent of the discharge gets lost during transmission to evaporation and infiltration into the river.

Mr. OBERSTAR. The Corps has determined that, under the current circumstances, it has ability to act without filing an environmental impact statement or even an environmental assessment under NEPA. Is that correct? Have you made that determination in any formal or official way?

Mr. EIKER. I do not think that final determination has been made. However, the NEPA regulations do provide exceptions under emergency conditions, and I think, once again, that is going to be part of our authority's legal analysis as it is being accomplished right now.

Mr. OBERSTAR. I think that matter of clarifying your responsibilities under NEPA is one that must be addressed and should be promulgated publicly.

What other measures can be taken to provide additional water either in addition to or in lieu of current plans for drawdown of the headwaters such as drawing water from any of the Twin City area lakes?

Mr. THORNE. Mr. Chairman, I don't believe there are other alternatives in that regard. The Twin Cities lakes don't have substantial capacity. As a matter of fact, they had until about a month ago been using the Mississippi to augment the lake levels which have been dropping.

I think we have adopted other conservation measures to keep the flows up in the tributaries and, I believe, other conservation measures upstream such as reducing the takes at the NSP plants. I think we have done everything that we can do to decrease appropriations and increase flows into the river.

I think this is a last resort as far as we are concerned.

Mr. OBERSTAR. What is the output of the NSP plant in megawatts?

Mr. THORNE. I can't tell you the output of Monticello specifically. Right now, the NSP is producing about 4,800 megawatts, and they are purchasing about 1,200 for a total demand right now of 6,000 megawatts. I don't have the figure for just the Monticello plant.

Mr. OBERSTAR. My recollection is that plant is 500 megawatts. I may be wrong on that, but that is my recollection.

If the water level in the Mississippi drops below 500 cfs, they have to shut down half of that capacity?

Mr. THORNE. Yes, Mr. Chairman. They have to go to a completely closed system which is not particularly efficient, and they have to derate the plant.

Mr. OBERSTAR. So, with a derated plant and still the demand for power, the company would have to buy power elsewhere, increasing the cost to consumers. Has that economic consequence been calculated and is that information available?

Mr. THORNE. I don't have the figures, Mr. Chairman, but NSP has definitely looked at that, and they are concerned that they may not be able to buy the power necessary at any price. There could be spot shortages on the grid in the future this summer. The availability, for example, of hydropower from Ontario is declining because of water flow problems in that system. Other States, of course, are experiencing similar record high demands for power.

So, the ability of NSP to continue to buy needed power off the grid may be declining.

Mr. OBERSTAR. There would then be severe economic consequences. The increased cost of power due to purchase outside the system is one measurable effect. The others may be more difficult to measure.

Mr. THORNE. That is correct.

Mr. OBERSTAR. Has your task force addressed this issue and have they made economic calculations of those additional costs?

Mr. THORNE. Mr. Chairman, we have not as a task force developed those figures. I know that NSP has looked at those figures. I personally have not seen them.

Mr. OBERSTAR. I would like you to obtain that information if it is available and provide that for us for the record.

Mr. THORNE. I certainly will.

[The following was received from Mr. Thorne:]

Northern States Power Company

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Telephone (612) 330-6007

Joseph A. Cascalenda
Vice President
Public Affairs

July 26, 1988

The Honorable Jim Oberstar
House of Representatives
2351 Rayburn Office Building
Washington, D.C. 20515-2308

Dear Congressman Oberstar:

Steve Thorne, MDNR Deputy Commissioner, informs us that you had questions in your July 14, 1988 congressional subcommittee hearing regarding the impact of low river flows on NSP generating facilities. We appreciate this opportunity to advise you about our situation.

At the present time, our generation system is in excellent shape. Through a combination of our own generation and power purchases, we have not experienced any problems supplying our customer needs, even at our new peak demand of 6,710 Mw which occurred July 15. The drought has created some minor operating problems for our plants. Through both physical and regulatory operating constraints, it has had a limited effect on the generating capabilities of some facilities. To date, our Monticello plant on the Mississippi River has been affected the most by low river flow conditions.

Monticello has been experiencing some derates (inability to produce full generating potential) over the past month that are attributable to a combination of low river flow and high river water temperatures. These derates have ranged up to 25 percent (136 Mw) of the plant's 545 Mw rated capacity. Typically, these derates have ranged on a daily basis from 2 to 7 percent (10-40 Mw).

Power purchases within the Mid-Continent Area Power Pool (MAPP) have been and will continue to be available to replace our plant derates, such as Monticello's. Replacement power purchases of this magnitude are handled routinely by our system operations people. These purchases, however, can only be secured at a price that is greater than our own cost to produce the power, and unfortunately will result in some minor additional charges to our customers. Attempting to forecast these increases is extremely difficult because of the many variables involved: the extent of the derate which is a function of air and river conditions; its duration; our own system demand; the spot market for purchasing replacement power, the status of regional demand, etc. As you can see, it's much like trying to forecast the weather itself.

Despite these complexities, our system operations, energy supply planning and rate departments have developed their best estimate of these potential impacts to our customers. Under a scenario that assumes Monticello is derated 25 percent for one week, we

estimate replacement power expenses would result in a $0.07 to $0.09 increase in our average residential customer's bill for each month that the plant is affected. Our average residential customer typically uses 650 Kw hours of electricity and pays $44.00 per month. Therefore, a $0.07 to $0.09 increase would add about two-tenths of one percent to the monthly bill. Based on plant performance over the past month's low flow conditions, this estimated impact appears appropriate.

Although we would prefer to have sufficient river flows that would enable us to operate Monticello at its maximum potential, we are confident that our generating and power purchasing capabilities will enable us to continue serving our customers with reliable and economical electrical power under both existing and projected Mississippi River conditions. With the predicted low flows, we will have to operate some facilities at less than full capacity, but we do not anticipate any shutdown requirements.

We have been working extensively with the Minnesota Department of Natural Resources Drought Action Task Force to keep the state informed of our situation. There has been good cooperation among the various interest groups on this task force as we all struggle in this difficult time to balance the needs of the state and protect its resources. Thank you for the opportunity to explain our situation. If you have additional questions, Tom Connelly, in Washington, D.C. at 484-0094, or other members of my staff will be happy to provide further information.

Sincerely,

Joseph A. Cascalenda

Joseph A. Cascalenda
Vice President
Public Affairs

cc: Commissioner Joseph Alexander, MDNR
Colonel Roger Baldwin, Corps Eng., St. Paul
Commissioner Anthony Perpich, MPUC

Mr. OBERSTAR. I would like to ask the panel to remain for a few moments while we stand in recess for this vote. I hope to be able to conclude shortly thereafter.

[Recess taken.]

Mr. OBERSTAR. Unfortunately, just as we are about to resume, another vote has been ordered on the House floor. I have one or two remaining questions, and I would like to swear in the next panel so that we conclude this hearing in a reasonable time to accommodate witness schedules.

As you draw that 4 inches off these lakes or some of them, can the panel tell the committee what extent of shoreline will be exposed? What does that 1 to 4 inches create in the way of exposed shoreline?

Mr. EATON. Mr. Chairman, that is a difficult question to answer at this point. I can tell you that it will differ from lake to lake.

Lakes like Gull Lake—Gull is a small lake, but it is a fairly deep lake and has a very rocky bottom—probably wouldn't expose much shoreline. A lake like portions of Winnibigoshish would expose a fair amount of shoreline. Big Sandy is another lake that probably would expose a fair amount of shoreline.

Typically, what we would be talking about would be perhaps something on the order of 5 to 10 inches of shoreline for every 1 inch drop in the lake.

Mr. OBERSTAR. What are the consequences of such exposure on aquatic life and on tourism?

Mr. EATON. As far as aquatic life goes, I am probably not too well qualified to speak to that, but I can say that if we were talking about 4 inches of drawdown, it probably wouldn't have a real significant impact. It might have some impact if it had been earlier in the year to waterfowl during the nesting period. There may be some impact to fur bearers that I am not aware of.

As far as the lakes go, Winnibigoshish has had a continual problem with shoreline erosion. In fact, a number of years ago, the DNR had requested us to lower the summer operating level by 1 foot which we did in an effort to reduce some of the shoreline erosion which was threatening an area called the High Banks area of the lake and some archeological sites.

Right now, it is exposing some nice beach areas. I would say if there aren't any detrimental navigation effects, the exposure of additional beach area is something that is probably welcomed by a lot of the people up there.

Now, you have to consider, though, that if it impacts on difficulty in getting out to their docks and those types of considerations, then it is not positive. We did have a request from the Pokegama Lake Association about three months ago to consider lowering the summer level of that lake about .3 feet just for that purpose, to expose some additional shoreline to produce some beach area.

Mr. OBERSTAR. Mr. Thorne, do you have anything to add to that?

Mr. THORNE. Only, Mr. Chairman, to reiterate that withdrawals in the ranges that we have spoken of this morning we do not think would have any significant fish or wildlife impact.

Mr. OBERSTAR. Have you established—reiterating a question I asked earlier—a level at which there would be that adverse impact for each of those lakes?

Mr. THORNE. No, Mr. Chairman, we haven't. It is really sort of a case by case analysis. It depends on when, where, what lakes, how much, and I don't think you can make a blanket statement. It really is very time and geographically dependent.

Mr. OBERSTAR. I understand. What about wild rice production?

Mr. THORNE. We have discussed that, Mr. Chairman, and you can perhaps ask the representatives from the Leech Lake Band that question as well. Our understanding is that the primary impact on wild rice is not on the crop itself because of the stage of development—again, it is time dependent—but, rather, on harvesting, because there may be difficulty in accessing stands if the water levels drop too low.

Mr. OBERSTAR. Thank you.

A final question: have the Corps and the State DNR considered longer-range conservation measures, including water storage for the future that will give greater capacity, that will provide for more mitigation of such low flow periods so that we will be better prepared to respond to such circumstances should they occur again?

I ask the question mindful of the fact that each time we have low water situations, droughts or some other equivalent disaster, as soon as the rains come, the appeal for action dissipates and the attention is turned to other concerns. Likewise, when we have high water conditions, as soon as the water gets up to unacceptably high levels, whether on the Great Lakes or the inland lakes, there is an appeal for action to reduce those levels. As soon as nature takes care of our problem, people forget about the issue and go on to other things.

We must not turn our attention away at this point, because we may not have that luxury in the future of depending on nature to bail us out.

Mr. Eiker?

Mr. EIKER. I don't think that we have specifically looked at additional storage as of yet. We did take a look at some modifications to the operation of those projects up there in a feasibility study that was completed in 1982, and that was following the 1976–77 low water conditions in the upper basin area.

I couldn't agree with your statement more. If we look around the country right now, the areas where we are having the least amount of problems are those areas that had the foresight to push through additional reservoir storage. California is one very good example right now.

But those areas where we can remember what is going on now and we can push for the kinds of long-term measures that you are speaking of are the areas that aren't going to be subjected to these kinds of controversies in the future. You can only squeeze so many benefits, if you will, out of the storage that we already have in place. There comes a time when we all start to hurt, and we are fast approaching that time in a lot of areas of the country.

But we would and should look at long-term measures such as you speak of.

Mr. OBERSTAR. Perhaps additional authority is needed to do that, and there is some such additional authority contemplated in the supplemental appropriation bill I mentioned earlier, but our Water

Resources Subcommittee of this Committee on Public Works and Transportation will also have to consider additional authority for the Corps to look at regional management plans for drought management and other considerations.

I am concerned about groundwater mining that is depleting groundwater resources for agricultural and domestic uses, not only in our area, but especially in the West where excessive groundwater mining has occurred and where with current levels of rainfall, if we stopped all other activities, it would take until the end of the century and beyond to replenish water levels.

This is a nationwide problem, and we all are in it together, and we need to be thinking about it together.

I want to thank this panel for its very frank and straightforward and helpful responses to the questions posed. Again, Mr. Thorne, I just want to compliment Governor Perpich on the direction he has given to the State agencies and the cooperation he has extended with the Corps of Engineers, mindful of the concerns of downstream and upstream users in trying to work out the equities and balance them as he has attempted to do.

[The prepared statements of Messrs. Eiker and Thorne follow:]

DEPARTMENT OF THE ARMY

STATEMENT

OF

MR. EARL E. EIKER

CHIEF, HYDRAULICS AND HYDROLOGY BRANCH
DIRECTORATE OF ENGINEERING AND CONSTRUCTION
HEADQUARTERS, U.S. ARMY CORPS OF ENGINEERS

BEFORE THE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES

ON

UPPER MISSISSIPPI RESERVOIRS' OPERATION

JULY 14, 1988

NOT FOR RELEASE
UNTIL RELEASED BY THE COMMITTEE
ON PUBLIC WORKS AND TRANSPORTATION

Statement of Mr. Earl E. Eiker
Chief, Hydraulics and Hydrology Branch
Engineering and Construction Directorate
Headquarters, U.S. Army Corps of Engineers

Before the Subcommittee on Investigations and Oversight
Committee on Public Works and Transportation
U.S. House of Representatives

Mr. Chairman and Members of the Subcommittee:

My name is Earl Eiker. I am Chief of the Hydraulics and Hydrology Branch in Headquarters of the U.S. Army Corps of Engineers. At your request, I am accompanied by Mr. Ed Eaton. He is Chief of the Water Control Unit in our St. Paul District.

I am pleased to appear before you today. I will discuss the current Corps operation of the reservoirs at the headwaters of the Mississippi River in northern Minnesota. I also will discuss the operational changes we could make in response to the low flow conditions downstream.

The six headwater reservoirs of the Mississippi River are Winnibigoshish, Leech, Pokegama, Pine, Sandy, and Gull. The Corps completed construction of the project in 1937 to augment flows in the Mississippi River for navigation. The reservoirs also operate, whenever possible, to reduce

flood stages in the vicinity of Aitkin, Minnesota, and to facilitate use of the area for recreational purposes and fish and wildlife conservation.

These six reservoirs are normally operated in the same manner each year. Starting the first part of October, a drawdown of 1-3 feet, (depending on the reservoir), is started in anticipation of the spring snow melt. During spring runoff, the lakes usually fill beyond summer requirements and the excess is discharged downstream. By the end of May, these lakes are normally at summer levels. Barring any large amounts of rain, the reservoirs are then maintained at these levels until the fall drawdown.

This year due to the early loss of snow pack with below normal runoff, the winter drawdown was stopped in February. All the reservoirs, but Leech, reached their desired summer levels. Leech was about 6 inches below its desired level. Currently, all reservoirs are below summer levels due to the combination of low inflows, minimum releases, and evaporation. Leech is experiencing the largest drop and is about 9 inches below normal summer levels.

To date no supplemental flow releases have been made by the Corps from these reservoirs for downstream purposes. The Corps has been an active participant in the ongoing drought coordination efforts of the Minnesota Drought Task Force established by the Minnesota Department of Natural Resources. We are providing stream gaging and flow measurement assistance to the State.

During the course of weekly Task Force meetings the State has expressed its desire to utilize the reservoirs as an emergency source of water for municipal and industrial water supply needs in the Mississippi River reach from the reservoirs to just below the Minneapolis/St. Paul metropolitan area. The Task Force identified a minimum flow rate of 1,000 cfs (as measured at the Mississippi River gage near Anoka, Minnesota) as the 'trigger' criterion for

the Governor of Minnesota to declare a drought emergency and request the Corps to release water from the reservoirs for low flow augmentation. Currently, the flow at the Anoka gage is about 1,100 cfs, and it is slowly increasing from recent rainfalls.

The Corps has indicated to the State at the weekly Task Force meetings that it intends to cooperate to the fullest extent possible regarding the possible use of the reservoirs for low flow augmentation. At the present time, the Corps is reviewing the legal considerations related to making such releases.

In the event that emergency low flow releases from the reservoirs are requested by the State of Minnesota and within our authority, the Corps is developing regulation alternatives for the reservoirs. As a part of this process public meetings sponsored by the Minnesota Department of Natural Resources are being held in the Mississippi Headwaters today at Walker, Minnesota and tomorrow at Grand Rapids, Minnesota. These meetings are serving to inform area residents of possible actions that might be taken regarding reservoir use for low flow augmentation, act as a forum for their concerns, present tentative regulation alternatives, and identify constraints to tentative alternatives.

The alternatives we are considering include:

Do nothing - This covers only consideration of minimum releases and evaporation losses from the reservoirs.

Uniform drawdown - This is an equal elevation drawdown from all six reservoirs. This drawdown is above and beyond minimum releases and evaporation losses.

Selective and/or variable drawdown - This alternative considers use of only some of the 6 reservoirs and varies the amount of drawdown to minimize adverse impacts. It would provide a means of protecting Indian Rights and takes into account differences in storage capacity and the extent to which inidvidual reservoirs have already been adversely impacted. Decisions regarding options will only come after meetings with concerned interests.

Mr. Chairman, this concludes my statement. I will be glad to respond to your questions.

Testimony Presented to the
House Subcommittee on Investigations and Oversight
by
Steven G. Thorne, Deputy Commissioner
Minnesota Department of Natural Resources
on
Withdrawals from Headwaters Reservoirs

Mr. Chairman and members of the Committee, for the record, I am Steve Thorne, Deputy Commissioner, Minnesota Department of Natural Resources (DNR). Thank you for the opportunity to appear this morning.

Our Department has been actively involved in contingency planning to minimize drought impacts since early April. One of the early warning signs of long range impacts is a steady fall in base flow in the Mississippi River at the Ford Dam in Minneapolis. Experience in 1976 and 1984 provides us with reasonable guidelines for concern as flows fall at this gauge. From June 1, 1988 to June 20, 1988 the flow in the Mississippi fell by nearly 70% and demanded immediate action.

There are three compelling needs for a substantial base flow in the river stretch extending from St. Cloud to Hastings, Minnesota:

1) Power production - Northern States Power (NSP) operates a nuclear power facility at Monticello, Minnesota. This unit is the largest and most efficient unit in the NSP system and requires a minimum base flow of 860 cfs to avoid initiating closed-system generation and reducing power output. If flows drop below 500 cubic feet per second (cfs) the plant must go to a total closed system and power generation falls by 50%.

2) Water supply - St. Paul and Minneapolis both draw their water supplies from the river. St. Paul has developed a well field capable of meeting 25% of daily demand and a reservoir system that can provide 60 days of reserve supply. Minneapolis has no alternate supply and a 24 hour reserve. If flow falls to 520 cfs the Minneapolis intake pulls air, the system loses prime resulting in failure of water supply for the largest single metropolitan center in the state.

3) Waste assimilation - river flow that passes the Twin Cities intakes provides the essential function of waste assimilation for the effluent discharge at the Metropolitan Waste Control Commission's Pigs Eye Treatment Facility. Flow in the river fell below the design flow for the plant in late June and dissolved oxygen levels are holding just above the critical point to avoid an extensive fish kill. In 1976 a 10 mile stretch of the river suffered a near total kill and game fish populations have only become stable in the past 4-5 years.

Given these needs, we began evaluations of alternatives and found only two options available.

1) Allow stream flows to fall:
   This option assumes power production would be cut back accordingly and ultimately, if necessary the Monticello Nuclear Facility could be taken off-line. Locking could be suspended in Minneapolis and the dam closed to flood out the city water intakes. This alternative essentially eliminates flows for waste assimilation and accepts a sag in dissolved oxygen and ultimately a major fish kill below the Pigs Eye Treatment facility.

2) Supplement flows - six reservoirs exists in north-central Minnesota that were constructed prior to 1913 to supplement flow for navigation in the Twin Cities reach of the river. Maintenance of the 9 foot navigation channel has all but eliminated the need for reservoir releases for navigation. Although the reservoirs are low due to the drought conditions there is sufficient storage to supplement river flow for an extended period without a major net impact on lake levels. Evaporation losses on the reservoirs would exceed withdrawals by 2 to 3 times.

Obviously any withdrawal of water from these reservoirs, located in the heart of the northern resort industry, has the potential for substantial adverse impacts. We believe that navigation may be most seriously impaired through shallow water in connecting channels between lakes and at harbor and marina entrances. We are preparing mitigative measures, primarily dredging, to minimize these impacts. Fisheries personnel see no significant impacts on the lake fisheries however public perception may result in cancellation of reservations in the area. Subsequently we have developed a work group of affected state and federal entities and representatives of the resort industry to develop a recommended plan of action and established a flow "benchmark" for initiating the plan. The basic elements of the plan are as follows:

1) If the flow in the Mississippi River at Anoka falls below 1,000 cubic feet per second for 24 hours;

2) The Cities of Minneapolis and St. Paul have agreed to do the following:

   a) Minneapolis will implement additional water use restrictions to reduce daily use to winter use levels (approximately ½ of summer use). Restrictions would include prohibition of: lawn sprinkling, outside car washing, street cleaning, grass medians. Minneapolis is currently restricting lawn sprinkling on an odd-even basis.

   b) St. Paul will restrict its withdrawals from the river to winter use levels while supplementing supplies from its well field and lake system. St. Paul will go to odd-even lawn sprinkling at the 24 hour 1,000 cfs flow and prohibit sprinkling at the 72 hour 1,000 cfs flow.

3) Northern States Power (NSP) has agreed to reduce its water use and would purchase additional power from other sources, including additional coal burning at its area plant. NSP is currently using a partial closed system at Monticello to accommodate existing river flow.

4) If the flow remains at 1,000 cfs or below for 72 hours and the Cities are complying with the water use restrictions, a request will be made to withdraw water from the reservoirs.

5) Releases would be managed to maintain a base flow at Anoka of 800 cfs.

We believe that this course of action represents a reasonable approach to minimizing drought impact for the public at large.

Page Three

Maintenance of an 800 cfs base flow would require withdrawal of approximately 300 cfs which could be sustained for 60-90 days with a net impact of 2"-4" in lake levels. In addition current water levels on the reservoirs vary substantially and we are examining selective withdrawals from those lakes with higher levels to further minimize impacts on the recreation industry and rice production.

I want to emphasize that we view this action as a last resort and hope to be able to avoid withdrawals. Mr. Chairman, this concludes my formal testimony, I'll stand for questions from the committee.

HEADWATER
RESERVOIRS
Winnibigoshish
BEMIDJI
GRAND RAPIDS
Leech
Pokegama
Pine
Big
Sandy
Gull
BRAINERD
ST. CLOUD
MINNEAPOLIS
INNESOTA
DEPARTMENT OF NATURAL RESOURCES
JUNE 1988

Mr. OBERSTAR. Our next panel consists of Joe Shepherd, Director of the Department of Lands and Water for the Leech Lake Band of Chippewa Indians; and Mr. Arnold Hewes, Director of the Minnesota Resort Association.

Gentlemen, please come forward to stand at the witness table.

[Witnesses sworn.]

Mr. OBERSTAR. The subcommittee will stand in recess pending this vote.

[Recess taken.]

Mr. OBERSTAR. Gentlemen, thank you for being with us and for traveling at such great length under short notice to participate in this hearing so that we can put on the record all the facts that are necessary for us in this subcommittee which has the unique responsibility for overseeing the activities of the Corps of Engineers and other Federal Government agencies in matters governed by Federal law.

It is our responsibility to take this sort of preventive action and precautionary action, to get facts on the record, to establish whether there are effective procedures in place for circumstances such as this so that we can have a yardstick by which to measure whether contemplated actions are being carried out as anticipated and within Federal law and guidelines and to enable us to also take whatever precautionary action may be necessary to prevent adverse effects.

That is why at this critical juncture before any plan is promulgated and implemented, we are holding this hearing.

We welcome your participation here. Let me ask Mr. Shepherd to begin.

TESTIMONY OF JOE SHEPHERD, DIRECTOR, DEPARTMENT OF LANDS AND WATER, LEECH LAKE BAND OF CHIPPEWA, MINNESOTA; AND ARNOLD HEWES, DIRECTOR, MINNESOTA RESORT ASSOCIATION

Mr. SHEPHERD. My name is Joe Shepherd. I am the Director of Lands and Waters for the Leech Lake Reservation Business Committee. I am here representing the Leech Lake Band of Chippewa Indians.

First of all, I would like to thank you, Mr. Chairman, for the opportunity to be here today and to address this very important issue. It is not very often that water problems in Minnesota come to national attention, and we do have water problems in Minnesota.

I would just like to make a brief oral statement and then answer any questions you would like me to address.

Mr. OBERSTAR. Please proceed.

Mr. SHEPHERD. The Leech Lake Reservation Business Committee which is the governing body of the Leech Lake Band of Chippewa Indians reside, as you know, in north central Minnesota. Leech Lake and Winnibigoshish Lake lie within the boundaries of the Leech Lake Reservation.

As you pointed out, Mr. Chairman, these two reservoirs represent 75 percent of any storage capacity in the six lake system.

The Leech Lake Reservation Business Committee, upon advice of their legal counsel, has formally objected to low flow augmentation of Twin City flows from the Mississippi River. This objection was made by letter to Governor Perpich of the State of Minnesota and the U.S. Army Corps of Engineers at the St. Paul District.

Basically, there are three reasons for this objection, the first being that the proposed action may adversely impact the wild rice resources of the Leech Lake Band of Chippewa Indians. The action would also impede navigation in harvesting wild rice from the wild rice beds on these reservoirs and other flowages that are affected by the operation of the water control structures on the lakes.

The proposed release of water would also adversely affect the tourism and recreational activity income from these activities in our area which provide a significant portion of the Leech Lake Reservation's economic base and generate many jobs for band members residing there.

The third reason is that the proposed action infringes upon the Leech Lake Band's reserved water rights and poses a future threat to the band's ability to maintain the Leech Lake Reservation as a permanent tribal homeland. This specific concern is not only related to this particular drought event but related to the precedent or providing Mississippi headwaters releases to assure water supply and waste water treatment assimilation for the Twin Cities area.

This is of special concern considering Corps of Engineers' projections in the headwaters study they conducted which projected minimum Twin City flows will approximately double by the year 2015 to around 1,600 cfs at Anoka.

I would also like to say that I am not competent as a lawyer or in that expertise to really address these issues at this present time, and we will submit some written testimony that will clarify some of these issues and the position of the Leech Lake Band.

Thank you, Mr. Chairman.

Mr. OBERSTAR. Thank you very much, Mr. Shepherd.

Mr. Hewes?

Mr. HEWES. I am Arnold Hewes, Executive Vice President of the Minnesota Resort Association. We have 400-plus members throughout the State of Minnesota. Roughly half of our members are in the six-lake area that is affected by the proposed drawdown.

I would like to thank you, Mr. Chairman, for calling today's hearing. I think it is bringing forth some valuable information to influence some decision making later on.

The Minnesota Resort Association has been involved in all of the discussions for the past month leading to the proposed drawdown at the 1,000 cfs level. We have appreciated the Minnesota Governor's office, the DNR, the Army Corps of Engineers, and now yourself, Mr. Chairman, in allowing us to be involved in these discussions.

I think it goes without saying that the resort industry is very significant to the economy of northern Minnesota. It is probably the number one industry in the northern part of our State, and anything that would adversely impact upon the resort industry not only would affect northern Minnesota but the entire State of Minnesota.

The official position of the Minnesota Resort Association is basically a simple one. We oppose any drawdown of waters from the headwaters lakes.

The reasons for this are the following: First of all, the lakes are already low as has been pointed out earlier today. Some of the lakes are extremely low levels at this time.

Perhaps more important, many of the channels that link some of the smaller lakes together and connect them to the larger lakes are very shallow at the present time. Our members are reporting difficulty already in launching and docking boats. They are having to build their docks further out.

We don't know of any specific case at the present time of any resort which has ceased operation because of a navigation problem. They are dealing with it from a management standpoint at the present time.

Some of our members have indicated, though, that if the lake levels fall much more, dredging will become necessary, and we are encouraged that the Governor and DNR will be able to provide funds from dredging in some emergency situations.

Our members are also concerned about the long-range negative impact on the fish and wildlife and the general health of the lakes. Our members, for the most part, don't have the technical expertise of the DNR people, and we do feel confident that the proposed drawdown of 2, 3, or 4 inches will not significantly have a negative effect on the fish and wildlife. We are counting very heavily on DNR's expertise in that area.

Perhaps an issue that really hasn't been put on the table yet today but we feel is probably a very important issue is that if a drawdown would occur at some point in the future, perhaps two or three weeks down the road, the image that that would portray to our potential customers in the Midwest and throughout the country would be negative for tourism in Minnesota.

Just the discussions to this point of a possible drawdown have had a negative impact. For instance, our members are receiving calls from people who have confirmed reservations asking is it okay to come, is there enough water that we will be able to enjoy the lake, and are the fish still biting? So, those kinds of calls are coming in.

We don't at the present time have any substantial reports of any lost business. We are getting some calls and some inquiries, but we are able to answer them in a very positive way, and people are coming and enjoying the lakes and the resorts.

However, if the actual drawdown did occur, we feel that the media coverage of that would have a negative impact on the very nature of the fact that water is being taken from the lakes. It would be almost a precedent setting thing, and at that point, whereas the effect might be very minimal in terms of 1 or 2 inches, the perception—and the word has been used frequently, "drain our lakes." We violently oppose the use of the word "drain." Drain, by very definition, means empty out, so we like to use the term "draw down." We are comfortable with that term.

So, the lakes are a valuable resource. They are, I guess, the foundation on which the resorts in Minnesota operate, and we would very much prefer that no drawdown take place.

However, we are a realistic organization, and we recognize that if a part of our State, particularly the Twin Cities, is in a crisis situation—and I want to emphasize a crisis situation, not a problem situation or not an uncomfortable situation, but a crisis situation—then our members would reluctantly—and I want to point out reluctantly—go along with a minimal drawdown.

We would hope that drawdown might not be more than 1 or 2 inches. We have tentatively gone along up to this point with a maximum drawdown of 4 inches, and we understand that would occur over a 45 to 60-day period, and we feel that the resort would be able to operate, maybe not as profitably as normal, but would be able to operate with a very minimal drawdown.

We will reluctantly go along with that drawdown, however, provided one very important thing takes place, and that is that once the drawdown begins, that Minneapolis and St. Paul and the affected suburbs in the Twin Cities that take water from the Mississippi River must enact very strict mandatory conservation measures. We are talking about mandatory measures by ordinance. We are talking about penalties, and we are talking about enforcement.

Two or three weeks ago, we were not pleased with the action that Minneapolis and St. Paul and some of the other suburbs have taken. But I think sitting for the last two or three weeks at the same table and talking about our problems we perhaps to some small extent have influenced the attitudes and the actions of the people in the Twin Cities, because at the present time, we are satisfied with actions that St. Paul has taken a couple days ago and actions that we understand the Minneapolis City Council will take tomorrow.

From all indications that we can see, both Minneapolis and St. Paul and the affected suburbs will enact very strict mandatory conservation measures. I guess, put in everyday language, if the resorts of northern Minnesota are going to bleed a little bit, we want to make sure that some of that conservation is also in the Twin Cities and that the people in the metropolitan area suffer a little bit also.

We don't want to threaten the viability of the resorts up north so people in Minneapolis can have a green front and back yard, but we are at this point very encouraged by the cooperative attitude of everybody concerned, and we have been a part of that process.

We officially oppose the drawdown. We are optimistic that it may not occur. We have had some rainfall. We seem to be able maybe to get into August now without any drawdown. So, we are optimistic. We have our fingers crossed that all the meetings have just been good planning and that we won't really have to get into that situation.

There are important meetings coming up tonight in Walker and tomorrow in Grand Rapids. To say that this discussion of a drawdown has caught the attention of our membership would be an understatement.

I can say that no issue since the gasoline crisis in the early 1980's has stirred up the interest of the resort industry. My phone has been ringing. Our president's phone has been ringing. I have received dozens and dozens of letters.

For the most part, the positions have been quite reasonable on behalf of the people I have been hearing from. They are really concerned that the people in the metropolitan area conserve if this takes place, and we are encouraged, as I said earlier, that Minneapolis and St. Paul seem to understand that.

I think that is about all I have to say at this point. I would be happy to answer some questions.

Mr. OBERSTAR. Thank you very much, Mr. Hewes.

I think the underlying concern is that of economics which you have expressed very well with regard to the impact on resort owners and the travel and tourism industry to have worked hard and long to build up and which is the anchor of the north central region economy.

Rightly so, you are expressing the concerns of people in that area about the consequences of any extended or significant drawdown of water both in its real effects and its perceived effects which, of course, can be even more serious. If people elsewhere think there is no point in coming up to go fishing—and that is why they come, for the fishing—then we won't see that tourism dollar in our area.

Do you have or have others developed information on the economic consequences of a serious drawdown upon the resort industry and travel and tourism in the headwaters area under various scenarios as now projected by the State DNR and the Corps of Engineers?

Mr. SHEPHERD. I am afraid we don't have the kind of information this committee is looking for. I could give you an example of some of the problems we do have.

When the Corps of Engineers was conducting their Mississippi headwaters study to reevaluate the mission and the operating plans for the headwaters reservoirs, the Leech Lake Reservation participated. We offered an operation plan for conservation of the lake resources, and it was added as an alternative for their evaluations.

One of the problems we did have in evaluating that alternative is that most of the economic damage curves do not include many of the traditional unique resources of the Leech Lake Band in the area, wild rice, for example. There was really no way other than to correlate the fact that steady water levels encourage and help the crop produce a better harvest in the fall, and rises and falls in lake levels damage the crop.

Mr. OBERSTAR. On that point, is there a water level necessary to be maintained for best wild rice crop production?

Mr. SHEPHERD. To the best of our and the Corps' ability, we did come up with a plan. I could submit a portion of the headwaters study appendix which covers this area to the committee.

Mr. OBERSTAR. Could you briefly summarize? Is there a minimum level of that lake expressed in feet that is required beyond which you begin to experience some crop damage?

Mr. SHEPHERD. Yes. I will go through that. In April, what the conservation plan calls for is a uniform rise from the snow melt and runoff for Leech Lake to a level of 1294.4 by May 15. At this point, wild rice plants are in a floating leaf stage. They are still submerged under the surface of the lake.

From May 15 to approximately June 5, the Corps of Engineers is incorporating part of this conservation plan in their present operations and attempt to allow a maximum rise of 2 inches in 48 hours but then stabilize and bring down the lake level to 1294.4 during that period.

From June 5 to September 10, we maintain the same lake level but with operation notes that the crop can withstand up to 6 inches of a rise in 48 hours during that period.

There are critical growth periods, mainly in the floating leaf stage earlier in the year that we are very concerned with, and then later in the year as the plants are a little more mature, they are annual plants and their root systems have developed, and they are a little less susceptible to wind and wave damage and rises and falls in lake levels.

The problem we perceive this year is that much of the rice grows in 6 inches or less of water. Much of that rice will become exposed or unavailable for harvest if some of the worst case scenarios we have been seeing were to occur.

Mr. OBERSTAR. Are you saying then that with 6 inches or less of water, the rice will grow acceptably and will produce sufficient heads, but some of that will not be harvestable?

Mr. SHEPHERD. With the low lake regimen. We actually get a better crop with low water years. However, there is the problem of harvesting it if withdrawals are made from the lakes.

Mr. OBERSTAR. So, there may be even a benefit in terms of production of the rice itself, but that benefit is offset by the fact that you are not able to harvest the rice.

Mr. SHEPHERD. Exactly right. The 1294.4 is slightly lower in the operating band than the present operating plan was at the time of the study. So, we are actually trying to operate the lake less in a reservoir regime and more in a stabilization of the lake levels mode.

Mr. OBERSTAR. Has the Reservation Business Committee determined what the economic losses would be at that level, at 6 inches or less of lake level in the region of the wild rice beds?

Mr. SHEPHERD. We have several people out, and so does the Corps of Engineers, trying to determine that. There are a lot of limitations to what we can verify in terms of economic loss or damages due particularly to lake levels. Storm damage and wind and wave damage can—there are a lot of variables to be considered, and it is more or less a long-term effort of obtaining data before we are going to be able to say reliably yes or no.

Mr. OBERSTAR. There are two classes, at least, of users of wild rice, those who consume on the reservation for their food needs for subsistence use, as it is called, and then the harvesting and processing for commercial purposes. In many cases, families do both. They consume it for subsistence and they harvest the rice for sale.

How many families are engaged in the harvesting and processing of rice for commercial purposes?

Mr. SHEPHERD. The commercial sale of rice is a very hard thing to measure also or the total crop, because we can monitor, say, sales of rice at certain points, but there is a lot of rice that is, let's say, finished by a family, stored, and sold as a finished product

over the year when money is necessary. It is hard to differentiate what is subsistence and what is commercial.

We like to view the crop as a commercial crop whether you eat it yourself or sell it to buy school clothes. It is basically meeting the economic needs of the families involved.

Mr. OBERSTAR. Well, as you proceed with this analysis, I think it is very important to establish those parameters and the economic consequences of the lake level dropping below the level required for harvesting of wild rice so that those of us who have a concern in either developing the plan or overseeing its implementation can protect that interest and ensure that water levels will be maintained at a depth necessary to permit not only adequate growth but effective harvesting.

Mr. Hewes, do you have any comment on the wild rice side of the issue?

Mr. HEWES. No, I think that Mr. Shepherd did a good job on that. I am not an expert on wild rice and neither are our members, so I think he handled that quite well.

I would like to address your question, though, from the standpoint of the resort industry. I think, as you know, Mr. Chairman, the resort industry for a variety of reasons has been flourishing in Minnesota for the last three or four summers. We are happy to report that this summer is a very good summer right now for the resort industry.

Some of the high temperatures being experienced in the Twin Cities is encouraging people to head to our northern part of the State. So, that has helped the resort business this summer.

So, what we are trying to do is keep that momentum going.

We feel that if a drawdown would take place, we are looking at a maximum of 4 inches over maybe a 60-day period, and probably more importantly and has not been stressed too much in the media or here today is during that same period, we are looking at evaporation of perhaps up to 12 inches. So, in a worst case scenario, it is possible with the already low lake levels that those levels could drop up to another 16 inches.

If that were to happen, many resorts in Minnesota, unless dredging were done almost immediately, would start to experience difficulties. Their guests would not be able to get out into the major part of the lake that they want to fish in, and if the dredging did not go forward almost at once, some resorts might have to close in Minnesota.

Because of the time table we are looking at, we are once again optimistic that with the two rains we have had in the last week, if any drawdown were to begin, it perhaps might not start until early or mid-August, and that 4-inch drawdown would take place, say, over 45 to 60 days. So, it might be about October 1 before we reached that worst case scenario.

Now, many resorts in Minnesota in early to mid-October are beginning to close for the season. By the end of October, three-quarters of all resorts in Minnesota are closed.

So, we are optimistic that with a little luck and a couple more rainfalls, we may be able to slip through this season without any adverse impact on the resort industry or any significant adverse impact.

But in terms of some specific information, once again, in the worst case scenario that the drawdown began almost immediately, we had some negative reaction from media coverage, reservations were being cancelled, the resort industry in Minnesota right now, conservatively, is about a $500 million a year industry. If we lost 10 percent of our business, let's say, in late August and September, that would be a $50 million loss to the State of Minnesota. That is a considerable sum of business, and that would be a 10 percent loss. That, once again, would be a worst case scenario.

We are right now being very optimistic with our members. We are trying to point out the positive side. Many of our members feel that if the drawdown begins, within a matter of days, their lake levels are going to drop 16 inches, and that is just not the case.

There have been some media coverage and headlines indicating lakes may drop 16 inches, but then the resort owners don't read the fine print that 12 inches is evaporation which would occur normally and that the drawdown would take up to 60 days to reach that 4-inch level.

So, it isn't a case that you are going to walk out and the lakes will drop right as you look at them. It will be a very slow gradual process.

As far as water sports, water skiing, boating, and things like that, we don't think as long as you can get your boat in the water that that will be interfered with, and we are relying once again on the Department of Natural Resources assuring us that a minimal drawdown will not impact the fish and wildlife.

We are going along with their view of that. Some of our members have a different view, but DNR people are the experts, and they are in business to protect our natural resources, and we feel that if they say 2 or 3 inches will significantly hurt the lakes, we believe that.

Mr. OBERSTAR. So, you have confidence, then, in the projections already made by the DNR about the effects of the proposed drawdown plan upon dissolved oxygen levels in the lakes and aquatic life, plant or fish life?

Mr. HEWES. We do, Mr. Chairman. Over the last three or four years, we have built a very close working relationship, deliberately, with the Department of Natural Resources. I have been in Minnesota now for ten years, and when I first took my present job, that kind of close working relationship didn't exist.

However, through the concerted involvement of some of our key members and the leaders of the resort industry. We work very closely now with DNR. We don't always agree with them, but we work closely, and we sit at the same table on many important issues.

We just recently worked out a plan for new shoreline management regulations, and we have been negotiating and discussing for almost a two-year period, and now DNR and the resort industry agree on these new shoreline regulations.

I think our discussions for the last month with DNR on the drawdown—we have had some input into decisions that they have made, and we are comfortable with these decisions. I don't think they want the drawdown, and we don't want it, but I think the

emergency plan that is put in place is fair to all concerned parties, provided the Twin Cities implement those conservation measures.

Mr. OBERSTAR. What percentage of the business for resorts in the headwaters area is derived from the Twin Cities?

Mr. HEWES. That is an interesting point, Mr. Chairman. Roughly half of the business that is done by the resorts in the northern part of Minnesota comes from the metropolitan area.

Once again, I think our association is a reasonable organization, and we understand that there is a crisis in the metropolitan area. That is where half of the customers are for the resorts.

Mr. OBERSTAR. So, there is more than a charitable interest in sharing this water with the Twin Cities area. You also want to generate some good will among those people who are customers, especially during this hot weather, who have been up north.

I see the headlights going north. I see the taillights going south on Sunday night as I come either from the Iron Range or, as I did over the Fourth of July, driving down from the Brainerd area into the Twin Cities. They are up there using our resorts, our lakes, and enjoying the better quality of life that we offer.

We also want them to understand that we are willing to share that resource but not to the point of destroying it.

Mr. HEWES. It would be self-defeating for the resort owners to drive a permanent wedge between themselves and the metropolitan area. That would be self-defeating, and I think most of our officers and directors understand that.

An indication of the new spirit of cooperation just in the last two or three weeks between the resort industry and the cities of Minneapolis and St. Paul is I was told prior to the hearing today that there is an important meeting coming up tonight in Walker, Minnesota and a representative of the City of Minneapolis will be traveling to Walker to assure the resort owners and the other people in that area that Minneapolis will do everything possible to conserve when the time comes here if a drawdown begins.

I guess I feel that two or three weeks ago, I don't think Minneapolis might have considered going to Walker this evening. So, there is, I think, a new spirit of cooperation that has come about over the last two or three weeks.

Mr. OBERSTAR. May that spirit of cooperation endure.

Mr. HEWES. Our resort association will do everything possible to make sure that that happens, because, as I said, our resort owners are business people. We are a business organization, and we need good will from people all over Minnesota as well as around the country.

Mr. OBERSTAR. It is important for the metropolitan area folks to recognize that there are concerns elsewhere in the State. I think when we come to a problem of this kind, it may have the beneficial effect of drawing people closer together as each understands the others' problems and attempts to respond.

That will produce good solutions and workable solutions and ones that can be depended upon for the future.

You have provided me with the information I was going to ask about the economic consequences of the drawdown should it go to significantly greater lengths than planned. A $500 million tourism industry in the late 1980's far exceeds projections of the 1960's

when, at that time, I have a report in my office of projections that if we did all the things that we should in Minnesota to attract tourism, we could have a $300 million tourism industry by 1995.

By a decade, we have exceeded that number, but we don't want to lose it. We don't want people to be turned away, either those in the Twin Cities or those outside our State.

Mr. HEWES. That is very right.

Mr. OBERSTAR. As you know, in the tourism industry, it is so hard to get those dollars and those people coming back. Once they have found someplace else to go, it is hard to turn them around. It takes an enormous amount of advertising dollars to bring them back, and the State has a very strong, thanks to Governor Perpich, tourism advertising program that has benefitted us considerably.

We want to keep it that way, and this management plan, therefore, is so critical.

Do you think that there would be any benefit if today there were implemented this tougher sprinkling ban and outdoor water use ban?

Mr. HEWES. In Minneapolis and St. Paul, the governing bodies of both of those cities—St. Paul, I believe, the day before yesterday, put into effect by ordinance a mandatory type of situation. Minneapolis City Council, I understand, will be meeting tomorrow to do the same thing.

The Minneapolis Department of Emergency Preparedness is, from what I have been told, going to phase 2 of the water conservation which basically meets all of the requests of DNR and our organization—a total ban on lawn sprinkling and many other things. It is about a 10 or 12-part program—no street cleaning. It goes on and on.

It meets or exceeds what we were asking for and what DNR was asking for. I think that will be done at the appropriate time.

Mr. OBERSTAR. But you don't think it is necessary to take that extra step, that tougher plan contemplated by the plan now?

Mr. HEWES. That is difficult for the Resort Association to answer. I think our members would prefer that it would have been done earlier for image's sake. In other words, it would have indicated that the metropolitan area was concerned perhaps before they actually had to do something.

Someone pointed out to me that you "can't save water in advance," and I guess I understand what they were saying. I think most resort owners wish, though, that those bans would have gone into effect several weeks ago.

Now, however, if the drought comes on and the bans take effect, they will be satisfied with that, maybe not as pleased as they might like to be, but they will be satisfied.

Mr. OBERSTAR. Mr. Shepherd?

Mr. SHEPHERD. I would just like to comment that the sprinkling bans were viewed—I believe there were some city officials in the Twin Cities that mentioned well, if we don't sprinkle our lawns with it, it will just go by our water supply inlet anyway. From a hydrologic perspective, that is right.

There are some benefits to diluting the waste effluent from Pigs Eye if the ban were on, but the Leech Lake Band's viewpoint is that Minneapolis-St. Paul were in this position with really no alter-

native but to provide them with a source of water, because they have only one source, and they have no means of reserving that water, and we would like to emphasize that point.

This is an appropriate forum for discussing the solution to our problem, the Public Works Committee. This is what is needed to preserve our way of life up there and the band's way of life. It is to assure that the taxpayers and the Federal Government with maybe the Federal Government's assistance can take care of their own needs in times like these.

Mr. OBERSTAR. Well, that is the purpose of this hearing so that we can better understand what is needed both with the instant situation and in the longer term. My constant concern is the long-range view of our water resource needs.

As I said at the outset of this hearing, all the water we are ever going to have is available today. We aren't going to create any new water, and we can surely waste what we do have. So, we have to be wise custodians of the available water.

For too long, the Jordan basin underlying the Twin Cities has been excessively drawn down. Wise management of that resource would have provided a cushion for the urgent needs of a crisis or near crisis situation.

I would like to ask you to let this subcommittee know whether there are any additional elements you would like to see included in the current plan and whether, secondly, there are any long-term actions you think should be taken beginning this fall and winter for future conservation purposes.

Mr. Shepherd?

Mr. SHEPHERD. We believe any action this year should be tied to a commitment by the Twin Cities to provide adequate water supply reserves and sewage treatment to allow for the low flow situations. This would be in the realm of a long-term development of infrastructure. We realize that. These types of things do not come about overnight, but we would like to see that.

Mr. OBERSTAR. Thank you.

Mr. Hewes?

Mr. HEWES. We also feel and we have been encouraging Minneapolis and St. Paul and the suburbs to take a look at it from a long-range perspective. I think St. Paul has already done that. I have been told within the last few days that Minneapolis has plans to make some changes in terms of their reservoir system so they will be better prepared in the future for such a crisis as we have right now.

So, we are going to urge DNR and the Army Corps of Engineers to work with those cities to do that. Outside of urging, I don't think there is much the resort industry can do except, once again, sit at the table and be a part of the discussions and try to urge the cities to look at the water situation very prudently.

Maybe in some cases, that hasn't been done as thoroughly as it should have been done in the past.

Mr. Chairman, one other comment I would like to make and get on the record at the hearing today, it has been suggested by some resort owners and other people as well that the tourism industry begin right now a significant advertising program to combat some

of the publicity of a possible drawdown or if the drawdown begins, then launch such an advertising program.

I have had discussions with Hank Todd, the Director of the Minnesota Office of Tourism, and he and I feel and other people of the Tourism Advisory Committee that Mr. Todd has that such an advertising campaign right now would be counterproductive, because once you launch an advertising campaign to tell people that the problem really doesn't exist, a lot of people may not have even known about the problem to start with.

Our bookings right now and for the rest of the summer are very strong, and we don't want to plant any seeds in people's minds in Des Moines and Omaha and St. Louis that we really have a serious problem up here, because right now, the publicity has not been that widespread.

So, as of today, we feel such an advertising campaign would be counterproductive. We are looking for a very strong summer, and we are just going to keep the advertising going that we have.

If that policy has to be reviewed in the future, we will review it, but we think such advertising right now would not be productive.

Mr. OBERSTAR. I think that is very important to have on the record. It is good that you have been thinking about it and planning ahead. If a wise plan for management of these resources is put into effect and generates the public confidence and support that we hope it will, you won't have to engage in any sort of emergency catch-up program as you have already described.

I would hope that that can be avoided. There is too much at stake for all of us.

I think it should also be recognized that the conservation programs described by the DNR and Corps witnesses of the tributaries to the Mississippi conserving water and reducing uses, reducing withdrawals, is having a very beneficial effect from the standpoint of headwater users in that any drawdown or withdrawals avoided on those tributaries is helping to maintain a level of flow at that 1,000 cfs which will preclude the necessity of going to an emergency plan that would require water from the headwaters.

I am pleased, I must say at this point of the hearing, with the care, the caution, the thoroughness with which the principal government agencies, Federal and State, have approached the issue, with their willingness to reevaluate on a weekly basis the conditions of the headwaters and of the metropolitan area users, with the care with which they have responded to the concerns of the Chippewa Tribe.

It is not only Leech Lake, but it is Mille Lacs as well that has—the Mille Lacs Lake Band—that has concerns about the effect of such a drought. I am pleased with the inclusiveness of the approach by both the Corps and the Department of Natural Resources in bringing all parties into the circle to discuss and to decide about what to do in the event this emergency plan must be put into effect.

This subcommittee will continue to monitor very closely the role of the Corps of Engineers in carrying out any such plan. It is, under Federal law, our responsibility to see that the concerns of all users are adequately met to the fullest extent possible under these dire circumstances that nature has visited upon us.

It is also for us to learn for the future what we must do to assure that we are the wise, careful stewards of this precious water resource that we must be for our own benefit and for that of future generations.

Do you have any other comments that you would like to make at this point?

Mr. HEWES. I think, Mr. Chairman, I would just like to thank you once again for allowing the resort industry in Minnesota to take part in the hearing today. We really appreciate that.

Mr. OBERSTAR. We are glad to have you here and glad to have the testimony from the Minnesota Chippewa Tribe, especially the Leech Lake Band of Chippewa Indians. I ask you to take back to the band my appreciation for your participation here today.

Mr. SHEPHERD. Thank you, Mr. Chairman.

Mr. OBERSTAR. The subcommittee will continue to monitor the circumstances and conditions of the plan as it evolves and, if it is implemented, the very implementation of that plan as we proceed.

The subcommittee will stand adjourned.

[Whereupon, at 1:40 p.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]

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